Rosario Resort Master Plan

Final Environmental Impact Statement (FEIS)

Volume 2 - Appendices: Supplemental Reports

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Prepared for San Juan County

December 2006

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VOLUME 2 APPENDICES

Volume 2 consists of background material that supports the environmental analysis comprising Volume 1 of this FEIS. The contents and relevance of each appendix is briefly summarized below.

Appendix A: National Register of Historic Places Nomination Form
Rosario's original National Register of Historic Places Nomination Form has been included to support the analysis to impacts on historic resources in section 3.8 of Volume 1.

Appendix B: Archeological Assessment for the Rosario Resort Master Plan
This archeological assessment report was prepared as part of the environmental analysis to document baseline conditions and potential impacts to archeological resources in section 3.8 of Volume 1.

Appendix C: The Concurrency Analysis
The concurrency analysis documents concurrency for water storage, treatment and distribution; wastewater treatment, and; transportation capacity related to Action Alternative B. This report was originally published in September 2004 as Appendix D, Volume II of the Rosario Resort Master Plan. Sections of this concurrency analysis were updated during the EIS process in mid 2005.

Appendix D: The Traffic Impact Analysis
The traffic impact analysis documents transportation issues related to Action Alternative B. This report was originally published in September 2004 as Appendix E, Volume II of the Rosario Resort Master Plan. Sections of this traffic analysis were updated during the EIS process in mid 2005.

Appendix E: Public Comment Letters (Non-Substantive)
Members of the general public submitted a total of 40 comment letters, e-mails, speaker's notes and petitions during the public comment period on the Draft EIS. The 20 letters from citizens that addressed the DEIS or substantive environmental issues are published along with responses to each in Volume I, Chapter 6 of this FEIS. The remaining 20 citizen comment letters, e-mails, speaker's notes and petitions expressed either support for or opposition to the proposed RMP but did not address the DEIS or substantive environmental issues. Because these comments are not directly relevant to the environmental analysis but will nevertheless be considered by San Juan County as part of the RMP review process, they are published in Appendix E.

Appendix F: Marina Biology Report
A marine biology report analyzing the marine environment of portions of Cascade Bay was prepared in 1997 by Cascade Environmental Services as part of the design process for a previous consideration to expand Rosario's marina. Portions of this report have been included as Appendix F because its findings are referenced in this EIS.

Appendix G: Stormwater Management Plan
Several comments received by the Lead Agency during the public comment period on the DEIS requested greater detail on water quality mitigation measures. This conceptual stormwater management plan, closely based on the Department of Ecology's 2005 Stormwater Management Manual for Western Washington, was prepared in response to these concerns. This Stormwater management Plan will be used to develop site-specific stormwater management plans during project-specific environmental review.

Appendix H: Economic Analysis of Alternatives
This memo summarizes an economic review of the No Action Alternative and both Action Alternatives A and B. In addition to addressing the relative economic viability of each alternative, this memo addresses the direct and secondary economic impacts on Orcas Island and San Juan County.

Appendix I: Sample Best Management Practices for the Rosario Resort Master Plan
This appendix contains definitions, descriptions, and diagrams of Best Management Practices (BMPs) used on construction projects to control erosion and minimize impacts to water quality. The intent of this appendix is to provide a sample of BMPs that are likely to be implemented during the construction of Rosario Resort under either Action Alternative. These BMPs are widely used in construction projects and are often written into permit requirements, typically the National Pollutant Discharge Elimination System (NPDES) or other water quality related permits.

APPENDIX A

NATIONAL REGISTER OF HISTORIC PLACES NOMINATION

Form No. 10-300 (Rev. 10-74)

36N 1W 1,6
37N 1W 3,4,31

H.P. copy

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED SU 320

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC: Rosario

AND/OR COMMON:

2 LOCATION

STREET & NUMBER:

__NOT FOR PUBLICATION

CITY, TOWN: Orcas Island __ VICINITY OF

CONGRESSIONAL DISTRICT: 2nd - Congressman Lloyd Meeds

STATE	CODE	COUNTY	CODE
Washington	53	San Juan	055

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	__PUBLIC	X_OCCUPIED	__AGRICULTURE	__MUSEUM
X_BUILDING(S)	X_PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X_YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	X_OTHER: Resort

4 OWNER OF PROPERTY

NAME: ~~Gilbert H. Geiser, Owner and Manager~~
Rosario Resort-Hotel Manfred Ceislick (206) 376-2222

STREET & NUMBER:

CITY, TOWN: Eastsound __ VICINITY OF STATE: Washington 98245

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: San Juan County Courthouse

STREET & NUMBER:

CITY, TOWN: Friday Harbor STATE: Washington 98250

6 REPRESENTATION IN EXISTING SURVEYS

TITLE: Washington State Inventory of Historic Places

DATE: 1974 __FEDERAL X_STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS: Office of Archaeology and Historic Preservation

CITY, TOWN: Olympia STATE: Washington 98504

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
__EXCELLENT	__DETERIORATED	__UNALTERED	X_ORIGINAL SITE
X_GOOD	__RUINS	XALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

GENERAL STATEMENT

Rosario is a partially intact luxury estate on a remote and protected cove on Orcas Island in the San Juan Archipelago, off the coast of Washington. It was developed following its acquisition in 1905 by renowned ship-builder and one time Seattle mayor, Robert Moran. The foundation for the three-story concrete and frame peristyler main lodge was hewn out of bedrock on a point of land commanding a view of East Sound and the westerly reach of the island beyond. The lodge, its Arts and Crafts, or so-called Mission Style furnishings, and the features of its grounds were designed by Moran himself. Conceived as a retirement project at a time when Moran was seriously ailing, Rosario was to be the home of Seattle's much honored pioneer for thirty-two years. When it was sold in 1938, Moran moved to smaller quarters elsewhere on the island. Of the original holdings of more than 6,000 acres, a private estate of 1,339 acres remained after the dedication of Moran State Park in 1921. The privately held portion changed hands for residential use a further time before its acquisition by the current owner in 1959. Consistent with Rosario's present role as a boat haven and year round resort and convention center, subdivided plats on the periphery of the estate have been sold for vacation homes. At the waterfront core of the 975 acres remaining under single ownership are most of the historic features developed by Moran. Buildings such as the main lodge have been adapted to new demands to some extent, but the estate's historical character is still apparent. Up-to-date facilities such as outdoor swimming pools, tennis courts, shops, and satellite rental units have been sited throughout the multi-level grounds as discreetly as possible.

LEGAL DESCRIPTION

The main lodge at Rosario is situated in NW¼ NW¼ Sec. 6, T.36N., R.1W., of the Willamette Meridian. Subsidiary historic features on the 10-acre site occupy the SW¼ Sec. 31, T.37N., R.1W., W.M.

GEOGRAPHIC LOCATION

The San Juan Archipelago is located above the northernmost reach of Puget Sound, between Canada's Vancouver Island and the Washington mainland. The island grouping makes up some 180 square miles of land surface, of which nearly 75 percent is concentrated in the three large islands of San Juan, Orcas and Lopez. Orcas, a saddle-bag shaped island of 56 square miles, is the largest of these. It is bounded on the north by the Strait of Georgia, which was charted first as the "Gran Canal de Nuestra Senora del Rosario la Marinera" by the Spanish commander Francisco Eliza in 1791. The enduring designation was given to the "Gulf of Georgia" a year later by Captain George Vancouver of the British Royal Navy. In 1847, Captain Henry Kellett, R.N., charted the channel on the east side of Orcas Island, and applied to it a part of the original designation for the Strait of Georgia made by Eliza. Thus, "Rosario Strait" forms the eastern boundary of the San Juan Archipelago.

The spectacularly sited estate which Robert Moran styled "Rosario" after the nearby channael, is located on the eastern shore of East Sound, the major inlet which nearly bisects Orcas Island.

PHYSICAL FEATURES OF THE SITE

The main lodge and its subsidiary historic features are situated on Rosario Point and along

a small deepwater cove known as Cascade Bay, which is some 1,800 feet across. Inside the cove, a gentle slope rises from a narrow sandy beach. On the west, is the rocky promontory of Rosario Point, and on the east are the sheer cliffs of the ridge which lies between Cascade Bay and a fresh water lake at an elevation of 346 feet. Known as Cascade Lake, the latter is an historic source of Rosario's hydroelectric power and water for irrigation. From the slope occupied by resort buildings the terrain rises on the north and west to the summit of Rosario Hill, which is 806 feet in elevation. It is around this hill that the approach to Rosario Point descends from the county road. Much of the estate's surrounding forest backdrop is second growth timber, as the site was previously occupied by a sawmill and box factory. Among the major species now seen in the immediate environs are native firs, shore pine and Pacific madrona.

Moran's site planning was remarkably sound. The main lodge was placed inside the sheltering tip of Rosario Point, where it was settled into a bedrock foundation and given a skewed orientation to command a view of traffic plying up East Sound from the southeast. A large, three-story sidehill barn, no longer extant, was sited some distance upslope from the lodge and oriented longitudinally for optimum drainage away from the lodge to the east. Most of the employees' quarters were arranged along the slope above the barn. The shop and warehouse building was essentially aligned with a dock at the center of the cove. Landscaping was held to a minimum in the historic period, for the intent was to retain as much of the natural setting as possible. A typical treatment was the contouring of a pathway around the base of a mound offset from the northwest face of the lodge. Although, no doubt, it resisted much alteration, the outcropping with its vegetative cover nevertheless was advantageously used as a naturalistic buffer. There were no formal gardens, but a high-grade rolled lawn was maintained in the small court created by a circular carriage drive fronting the northwest facade. The outer perimeter of the forecourt was lined with a low concrete wall with stepped ends, and interspersed along it were pedestal mounts for tripartite upright and pendant light globes on concrete filled steel pipe standards. Anchor chain was strung, swag-like, between the pedestals for tethering horses. A concrete water basin and fountain presumably for watering horses is no longer in situ at this location. The forecourt demi-screen of lamps and similar lighting fixtures throughout the grounds are still intact. The lodge forecourt and the driveway, which was eventaully paved, are now further embellished with mature horse chestnuts, maples, and other exotic flora. On the southeasterly side of the lodge, facing the water, is a bayed terrace lawn retained by a banked rubble wall surmounted with a concrete railing and lamps. Evergreen shrubs lining the inside of the perimeter walk of this terrace appear to have been planted at the same time the second owners constructed a sea wall and a concrete orchestra pit at water grade below the lodge with the generous intent of providing music and perhaps a dancing area for yachting guests at anchor in Cascade Bay. Another landscape feature which apparently post-dates the Moran era is a rustic, Japanese-style garden which has been developed in a hollow on the northeast end of the lodge.

The landscape at Rosario was not without a fashionable contrivance or two in Moran's time. At the center of the cove, a low concrete sea wall was constructed above the beach, and a strip of lawn was planted above that. In the space between the strand and the forest

which crowded the waterfront was a 360 foot long concrete lined and bow shaped lagoon for bathing and canoeing. It has islands in either end, and a concrete arch bridges the narrowest part in the middle. This lagoon, as is documented by the date inscribed in the bridge, was introduced in 1915. A year later, Moran added a final sculptural element to this artificial water feature by mounting at its forefront on a graceful concrete arc the liberty capped carved figurehead of the America, a clipper ship which had been built in Massachusetts in 1874, later put in the Pacific coasting trade, and wrecked upon neighboring San Juan Island in 1914. Moran admired this specimen of a dying sentiment and art in shipbuilding.

THE LODGE

Rosario Lodge is an imposing, yet unforbidding three-story mansion with basement which measures 62 by 110 feet. It is located on a foundation of bedrock on a sidehill site on Rosario Point. It has a peristylar ground story and a hipped roof with broadly overhanging eaves and a multiplicity of dormers and straight-sided chimneys. Plans were drawn by the founder of the estate, Robert Moran, who expressed his lifetime experience as an industrial and nautical engineer in terms of sound construction. While the lodge is highly individual in character, in its respect for its setting and thorough workmanship; its projecting roof forms and emphasis on porch space, it bears a distinct relationship to the Arts and Crafts movement, particularly as advanced in this country by Gustav Stickley's magazine, The Craftsman, which commenced publication in 1901. Reflecting Craftsman aesthetics even more directly were the solidly constructed furnishings and high quality natural wood finishes designed by Moran and fashioned on the site.

The basement and ground story are constructed of ten inch thick reinforced concrete; upper stories are of frame construction, and the entire exterior wall surface is stuccoed. The original overall pigment was a deep brick red, or maroon. The house was painted white by intervening owners some time between 1940 and 1959. As a consequence, the dark, repeating patterns of window openings and the veranda arcade contrast even more boldly with the present light reflecting exterior surface than they did originally.

Initially, the roof had a cedar shake cover, but later it was overlaid with copper by Moran when he acquired a large supply at a reduced rate during the Depression. Copper rain troughs leading from the valleys of dormer roofs to the eaves troughs are still in place atop this metal cladding. Large dormers at either end of the hipped roof and pairs of smaller dormer flanking light wells centered in either major elevation are faced with shingles. Flues and chimneys are tall and straight-sided, stuccoed, and finished with wide, rolled over caps. Overhanging eaves are carried by scalloped outriggers. The rain drain collection system is completed by downspouts which lead from the eaves troughs down the outside wall to the porch, where they are introduced through the wall and brought down on the inner side of porch posts.

The first and second stories are lighted by ribbon windows composed of long, squat bays of 7/8 inch plate glass with narrow sidelights. These openings are devoid of exterior

trim or moldings. A rolled or lipped belt cornice which shelters a belt of electric light bulbs marks the division between the stories. The second story overhangs a veranda twelve feet deep which originally circumscribed the entire ground story core. The peristyle, or outer arcade, is formed by modified basket arches with tapered supports which are a pleasing foil to the general angularity of the building. The porch railing is solid with rounded top rail, and concrete porch steps centered in the front and northeast end elevations have solid curvilinear railings. Over the steps on the northeast end a watch bell inscribed with the estate name "Rosario" is still in place. Behind it, on the porch wall, red, green and white marine lanterns decorate the entrance to the livingroom. When the lodge was adapted for resort purposes after 1959, the veranda on the southwest end was removed to make way for a new diningroom wing, and all but the easterly 30 feet of the veranda on the rear face was enclosed for use as a cocktail lounge. On the westerly two thirds of the front elevation, the ground story wall was removed and rebuilt eight feet out into the veranda to create an enclosed gallery for circulation between the registration desk and the gift shop and public diningroom. An additional entrance and concrete porch steps imitating those existing were added on the westerly end of this face. Despite these alterations to gain usable interior space, the outward effect of the veranda arcade has been preserved on either major elevation. The concrete basement is above grade on the rear facade, where its surface is a taut plane with small, untrimmed rectilinear openings which light assorted recreation rooms.

Typical finish woods of the interior are teak (a durable wood commonly used for boat decks, etc.) and African mahogany. The former was used for basketweave parqueted floors (which were liberally accented with oriental area rugs), and the latter produced lustrous dark toned door and window trim, ceiling beams and the paneled wainscoting of the stair hall. Much of the furniture was also made of teak, which was particularly suitable for the straight lines of Moran's Mission Style banquet tables (frequently draped with deer hide "cloths"), chairs, settles, sideboards and other case pieces. Moran, with his engineering bent, and his experienced craftsmen, many of whom were shipwrights and machinists, produced fittings of considerable ingenuity. These included: a tall case clock for the main stair hall landing (it had a beaten copper face and a plate glass door which revealed the assorted polished brass eights); customized hardware, including special "butterfly" door hinges with cone shaped self-lubricating pins of lignum vitae and central pivot mounts for the plate glass windows; a Mission Style conversation chair with opposing seats; a quantity of leather upholstered armchair rockers; indirect lighting over the ribbon windows which was diffused through parapets of marbelized colored glass; desks with nautical recessed drawer pulls; chests of drawers with rounded corners and revolving mirror stands offset to one side; some built-in ship's bunks; and an extensive assembly of built-in kitchen and pantry cabinetry. While a good many built-ins and fixtures are in place, most of the original furniture has left the premises over the intervening years.

The two best preserved public rooms of the lodge are the ground story living-dining room which is now used as a private dining area, and, directly above, the music room, now used as a lounge. Among the distinctive features of the living-dining room are two lateral beams with coved plaster soffits which span the room at right angles to the longitudinal beams. On the underside of either of these peculiar beams so reminiscent of ship's

carpentry, are five of the ubiquitous frosted hemispherical light globes in "port hole" mounts used throughout the lodge. On the inside wall of this room, opposite the entry from the veranda, is a fireplace surround of molded concrete with a facing of marble chips. This feature is understood to have been cast in one piece by the Moran Company and shipped to Rosario for installation. Its mesh fireplaced screen is still intact on runners inside a voluted brass railing suspended from the coved mantle.

The music room was perhaps Moran's pride, for it boasted many specially acquired features. Chief among these was an Aeolian pipe organ for which a double tier of pipes divided by a windowed alcove was installed on the northeast wall. The organ console was centered on a horseshoe shaped balcony with a bowed plaster soffit on the opposite end of the room. On either side of the balcony are library alcoves equipped with portiere curtains. At the center of the ceiling is a faceted hexagonal stained glass light fixture depicting the seven liberal arts. It is attributed, on the basis of Moran's correspondence, to that paragon of Arts and Crafts ideals, Louis Comfort Tiffany. A second noteworthy piece of stained glass in the room is the large rectangular clerestory window in the alcove between the organ pipes. It depicts in detail Antwerp (the chief port of Belgium), various steam and sailing vessels in the harbor, and major landmarks on the east bank of the Scheldt, including the Cathedral of the Holy Virgin, the late medieval fortress, and the Stadhuis, or townhall. The work is signed by "L. de Contini, Brussels, Belgium", about whom no information is printed in the standard artists' biographical dictionaries. The final extraordinary feature of the music room is the fireplace on the entrance wall which is faced with green ceramic tile and trimmed with studded copper. Sailing ships are depicted in a blue and white tile frieze above the mantle, and marine lanterns on brackets are used as accents on either side.

The basement floor contains recreation rooms with varicolored mosaic tile floors. In the game room, a billiard table and a pool table were mounted on pedestals hewn from the bedrock. In one of the side aisles, a maple bowling alley was laid atop steel beams imbedded in the rock. The game tables and their monolithic bases (which had to be drilled out) were removed around 1960 when the area served temporarily as the resort's first conventional hall. There is a stage-like alcove with platform at one end. In the adjoining gymnasium is a 13 by 40 foot swimming tank, originally tile lined but recently relined with fiberglass. The old laundry and furnace rooms have been converted for use as a sauna and dressing rooms.

On the ground story were the stair hall, the 30 by 39 foot living-dining room, the kitchen and pantries, and two large refrigeration rooms. With the exceptions of the living-dining room and the stair hall, this floor has been altered for storage, lobby-office, cocktail lounge, and gift shop use. The second story contained, in addition to the music rooms, twelve bedrooms, sewing and linen rooms, and a trunk room. Several of the bedrooms are still maintained as guestrooms. Those spaces adjacent to the stair landing and music room are now used as administrative offices for the resort. Future plans for utilizing this floor as a boutique area are under consideration, but it is intended that most of the woodwork would be preserved. On the third story, in addition to the library balcony

of the music room, were a photo darkroom, dispensary and seven bedrooms. This floor lately has been used as quarters for resort personnel. The attic was a finished clear-span room capable of sleeping fifty persons on cots. It is presently used for storage purposes.

SUBSIDIARY STRUCTURES

The oldest structure on the site is believed to date from the area's initial development as a lumber manufactory by E. P. and Andrew Newhall after 1887. A two-story, gable roofed and clapboarded frame dwelling presently referred to as the Newhall House, and to which the date of 1888 is attributed, fronts a fenced perimeter road immediately north of the lagoon. Simply furnished with details derived from the Classical Revival, this house apparently was not the showiest residence erected by the Newhall family at this location. It may have been built for Andrew Newhall when he first served as superintendent of the mill. Now privately occupied, the solitary remnant of the predecessor settlement has been latered externally to some extent with aluminum window sash and new siding on elevations exposed to the heaviest weather.

Of the six separate living quarters built by Moran on the estate for his domestic staff, four are still standing within the immediate environs of the main lodge. The largest of these, a pair of commodious three-story Craftsman bungalow, are sited on the grassy slope above and to the west of the lagoon. They are oriented toward the southeast somewhat like the main lodge. Sited in the trees immediately west of the original access road on the slope above the lodge are two rustic cottages of differing size with peeled log porch posts. Each of the four houses is privately occupied at present.

A circular playhouse or pavilion with concrete slab floor and roof, which was built on the inner bank of Rosario Point overlooking Cascade Bay, is now another of the private residential enclaves under resort management. Its date of construction is uncertain, but it is assumed to be contemporaneous with several other concrete structures erected in the early 1920s. Another such structure, a block-like utility building detached from the southwest end of the lodge, was enlarged and remodeled in a Spanish motif for use as a one-story office and beauty parlor around 1973. With a rectilinear plan now measuring 34 by 40 feet, this facility has a stucco exterior veneer and iron grilles on its double-arched facade. A concrete wood bin adjacent to it on the north is still in use.

A single story, 28 by 22 foot concrete hydroelectric generator building, or power house, bears the inscribed date 1921 on its plain facade, which is relieved only by small openings and strip pilasters. It is sited above the east end of the lagoon, which in turn is filled with fresh wastewater from the turbine. The capacity of the power house was cited as 125 kilowatts when Moran was promoting the sale of his estate in the early 1930s. To furnish this power, Moran built a concrete dam at the outlet of nearby, elevated Cascade Lake, which in turn was replenished via an artificial water course from Mountain Lake, which has a still higher elevation of 914 feet. The generator operated Rosario's electric lights, cooking, refrigeration and laundry equipment, and shop motors, with power to spare

for heating bedrooms in the main lodge. The generator is still in use, but its capacity is now supplemented from other sources.

The three-story concrete shop and warehouse building is rectilinear in plan and measures 25 by 90 feet. It is located on the far, or east end of the lagoon and is oriented perpendicular to the waterfront. The gasoline dock is slightly offset to the east. The building has a shallow, copper covered gable roof; strip pilasters and belt courses mark off its bays and stories. The building had its principal entrance in the south, or waterfront end, and it housed fully equipped machine, metal and woodworking shops, a brass foundry, and electric welding equipment. A stock of general mechanical merchandise and a supply of lumber were also stored in the building. Although the date inscribed in the south gable end is 1925, it is known that most of the custom work required to outfit and furnish the main lodge was carried out in this building, or on its site, between 1906 and about 1912. The sizable shop building was first converted for use as a "boatel", or motel for boaters in 1963, but interior partitioning has been revised several times since then. At present, a two-story frame veranda extends the length of the west elevation and across the sound end. Centered on the east elevation is a two-story covered stair structure.

NEW CONSTRUCTION ASSOCIATED WITH THE RESORT

Since Rosario's opening as a public resort in 1960, a number of recreational facilities and rental units have been added to the grounds. The first addition to the lodge itself was a two-story, 75 by 52 foot diningroom wing with flat roof and white painted plywood exterior veneer. In 1968 it was erected at right angles to the main block alongside the westerly portion of the southwest end. The fore part of the wing was built out over the terrace in order to provide an unobstructed view of East Sound and Cascade Bay on three sides. At terrace level, an irregular shaped swimming pool measuring 31 by 26 feet was constructed for adult use at the base of the diningroom wing. In 1971 the original kitchen at the core of the lodge was replaced by a 60 by 36 foot concrete block kitchen wing - less hazardous in terms of fire, which telescoped from the southwest elevation of the new diningroom wing. The former kitchen area was then developed as storage and lobby-office space.

Construction of detached rental units began in 1965 and has continued nearly to the present day. Staggered, single-story multiple units known as Villas are clustered off the northeast end of the lodge. A pair of two-story Villas with balconies and interior finish of plaster board and fir trim resembling conventional motel blocks in design was sited further to the east, near Moran's concrete pavilion. Each of the Villas is sited below or in the back of normal sight lines from the public rooms of the lodge, and each is arranged in such a way as to provide an optimum view of its own. On the upper slope, outside the immediate environment of the lodge, are a number of housekeeping units called Haciendas which are connected by a perimeter road. Tennis courts, added in 1968, and a large convention center known as Discovery House erected in the 1970s similarly fall

outside the historic core of the resort. Within the core, however, at the westerly end of the cove, are several other new facilities. These include a breakwater to protect a small boat basin, a family pool with concrete deck and bathhouse added in 1962, and a frame building on concrete slab with a wooden front deck which was built in 1963 to house a self-service laundry, snack bar and art gallery.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	X LANDSCAPE ARCHITECTURE	__RELIGION	
__1400-1499	__ARCHEOLOGY-HISTORIC	X CONSERVATION	__LAW	__SCIENCE	
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE	
__1600-1699	X ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN	
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER	
__1800-1899	__COMMERCE	X EXPLORATION/SETTLEMENT	__PHILOSOPHY	X TRANSPORTATION	
X 1900-	__COMMUNICATIONS	X INDUSTRY	__POLITICS/GOVERNMENT	X OTHER (SPECIFY)	
		__INVENTION		Parks & Recreation Movement, Nautical Engineering	

SPECIFIC DATES 1905-1925 BUILDER/ARCHITECT Robert Moran

STATEMENT OF SIGNIFICANCE

GENERAL STATEMENT

Rosario is significant to Washington as the partially intact luxury estate personally designed and developed in an offshore island wilderness by Robert Moran beginning in 1905. The sizable main lodge (1906-1909) and the nearby 5,000 acre park which Moran dedicated to the State in 1921 are the physical features now most widely associated with the Seattle pioneer, one time mayor and founder of the renowned Moran Brothers shipyard. During the gold excitement in 1898, Moran's company produced and delivered to Alaska a fleet of river steamers, ocean tugs and barges vital to the Yukon trade. Later the company pioneered the steel shipbuilding industry in the Pacific Northwest. It manufactured U. S. war vessels, including the masterpiece, Nebraska (1902-1904), the first battleship launched from a Puget Sound shipyard. The first class roads which Moran constructed to his Orcas Island estate were donated to the county, and the estate's water rights were shared with the tiny settlement of Olga on Buck Bay. Because of these and other public-spirited deeds, Moran was looked on as the island's greatest benefactor. Robert Moran was genial host to family, friends and notables at Rosario. The estate changed hands in 1938 and again in the 1950s before its acquisition by the present owner in 1959. Although it is currently maintained as a commercial enterprise, Rosario's continuity as a place of hospitality in the San Juan Archipelago has been reaffirmed.

DISCOVERY AND OCCUPATION OF THE SAN JUAN ARCHIPELAGO

The San Juan Archipelago, lying between Canada's Vancouver Island and the Washington mainland, was discovered in the great age of maritime exploration off the Northwest Coast of America. The entrance to the sizable opening in the coastline between northern parallels 48 and 49 was first examined in 1788 by British sea captain John Meares. On the strength of published tradition, Meares named the strait for its legendary discoverer, Juan de Fuca. Thereafter, examination of the Strait of Juan de Fuca was pursued by the Spanish, notably by Francisco Eliza, who, in 1791, vaguely delineated the "Isla y Archipelago de San Juan". Under Eliza's expedition names also were given to Haro and Rosario Straits, which delimit the island grouping on the west and on the east. Detailed exploration of the archipelago was first undertaken fifty years later by the United State Exploring Expedition under Lt. Commander Charles Wilkes, in 1841. British Royal Navy exploration of the archipelago dated from 1846. Further charting for the United States was conducted by the U. S. Coastal Survey in 1853.

The San Juan Islands figured in the diplomatic history of the Northwest Coast as a consequence of their being essentially overlooked in the settlement of the boundary between British North America and United States territory in 1846. The treaty abandoned to the United States everything south of the 49th parallel excepting the southern tip of Vancouver Island. The channel between the 49th parallel and the Strait of Juan de Fuca which was to have formed part of the westernmost segment of the international boundary was not precisely defined.

The islands had been regarded as British soil by the Hudson's Bay Company ever since Fort Victoria, company headquarters on Vancouver Island, was founded in 1843. Partly as a means of establishing possession, company employees were dispatched to the nearest of the offshore islands, San Juan, to set up salmon curing and livestock stations at least as early as 1850. Traffic through the islands increased in the ensuing decade, particularly after gold was discovered on the British Columbia mainland in 1857 and 1858. As immigration to the San Juans by U. S. citizens and British subjects accelerated following the gold rush, jurisdictional disputes inevitably arose. An incident over the killing of a Hudson's Bay Company pig by an American settler nearly erupted into war in 1859. Thereafter, U. S. and British troops were garrisoned on San Juan Island to monitor an interim of joint occupation, during which time the Boundary Commission sought to negotiate a dividing line. Finally, after twelve years had elapsed, the question was submitted to William I of Germany for arbitration. Priority of occupation notwithstanding, in October 1872 the German Emporer and his expert advisors decided upon Haro Strait between Vancouver and San Juan Islands as the boundary intended by the treaty of 1846. Thus, the San Juan Archipelago officially became, intact, a possession of the United States. A year later, in 1873, the islands were organized by the Territorial Legislature of Washington into the local governmental entity of San Juan County.

PRIOR SETTLEMENT AT ROSARIO

Prior to Robert Moran's acquisition of holdings on East Sound at Cascade Bay, the place now occupied by Rosario Resort was known as Newhall. In 1887 the Cascade Bay Lumber and Manufacturing Company was incorporated to manufacture barrel stock (undoubtedly for Orcas Island lime works), boxes, and dressed and rough lumber for local trade. The officers, apparently brothers, were E. P. Newhall, president, and Andrew Newhall, superintendent. A small work force of ten was employed at the primitive camp initially, and a steamboat and a tug contributed to the operation. Water power was supplied by Mountain and Cascade Lakes, as it was in Moran's time. The date of 1888 has been attributed to the one remaining structure of the Newhall enterprise, a simple frame dwelling which may have been occupied by the superintendent. It is believed that a finer residence once stood at Newhall. A post office was established at this location in 1889. The company appears to have been in operation at least as late as 1901, and the property was purchased by Moran from Andrew Newhall in 1905.

ROBERT MORAN, PIONEER OF THE STEEL SHIPBUILDING INDUSTRY IN THE PACIFIC NORTHWEST

Robert Moran (1857-1943) was a native of New York, the grandson of an Irish emigre by the same name who had settled in New York City in 1826. His family on both the paternal and maternal sides were skilled iron workers, and the young Moran learned the rudiments of the machinist's trade at an early age. The third of his parents' ten children, he left public school at the age of fourteen to earn his living. In 1875, when he was not yet seventeen, Moran left New York and arrived in Seattle as a steerage passenger via steamer from San Francisco. Having no means, he immediately started to pick up jobs at common labor. Eventually he found work on a Puget Sound steamboat, and devoted the ensuing seven

years to steam navigation on Puget Sound and the inland route to British Columbia and Alaska. By the end of that time he had become a licensed chief engineer.

In 1882 the foundation was laid for a career which was to have a profound impact upon shipbuilding in Seattle. With a capital reserve of $1,500, Moran and two of his brothers recently arrived from New York started a small machine shop for the repair of steamboat and sawmill machinery which grew and prospered. In 1887 Robert Moran was elected to the Seattle City Council. A year later be became Mayor, the sixteenth to hold the city's chief executive position. He was reelected for an additional term, and thus held the post from 1888 to 1890. It is generally agreed that Seattle was particularly fortunate in having made this choice, for the vigorous approach to rebuilding the downtown core following a disastrous fire on June 6, 1889 is credited in large part to Moran's leadership. Of all his accomplishments as Mayor, Moran was most proud of having replaced the city's inadequate water system which had been a major factor in the city's inability to stop the spreading blaze which wiped out the entire business section. At Moran's direction, the eminent hydraulic engineer, Benezette Williams of Chicago, was brought out to do survey work and plans and specifications for Seattle's Cedar River Water and Power Plant. The city's sewerage system was upgraded at the same time.

Moran's expanded machine business had been destroyed by the Great Seattle Fire, but was quickly put in operation again on a new waterfront site helping to fulfill the demands of rebuilding the city. The Moran Brothers Company was organized in December, 1889 with a capital stock of $250,000. Moran was president, secretary and treasurer; his brother, Peter, was vice president. The third brother, William, had retired from the family business by this time.

The gold excitement in Alaska 1897-1898 was a boon to local business in general, as the Yukon bound were outfitted in and supplied from Seattle. In 1898 the Moran Brothers Company constructed a fleet of river steamers, ocean tugs and barges vital to the Yukon trade, and Robert Moran commanded its delivery to the North Pacific via the inland passage in August of that year.

In 1900-1901 Moran Brothers constructed a dry dock which enabled the company to take orders for building and repairing large steel and iron ships. The company successfully bid for construction of the U. S. Navy's first class 15,000 ton battleship Nebraska. At first the Navy rejected the Moran's low bid as being too high. But an arrangement was negotiated in which the Navy adjusted its specifications somewhat and, together, Moran Brothers and the Seattle Chamber of Commerce, which with local newspaper support organized a popular subscription campaign, made up the deficit. The Nebraska was launched with full ceremony Ocotber 7, 1904 and at 19 knots exceeded the Navy's requirements for speed. As was planned, the steel shipbuilding industry on the Northwest Coast was given its impetus by the building of this first battleship ever launched from a Puget Sound shipyard. At this time the Moran Brothers Company and the Moran controlled Seattle Dry Dock and Ship Building Company offered the most complete facilities of the kind on the Pacific Coast outside of San Francisco.

Following Robert Moran's retirement, forced by ill health in 1906, the company was sold to Berton-Griscomand Company of New York. Under various corporate titles, it continued as one of the largest and best equipped in the country, and it filled order for freighters, U. S. Navy submarines and other vessels throughout the period of the First World War.

Moran's membership in professional organizations included the Northwest Society of Engineers, the American Shipmasters' Association, the Marine Engineers' Association, the American Society of Naval Engineers, and the Institute of Naval Architects, London. In 1939 he was elected president of the Pioneer Association of Washington. He also was a trustee of the Washington National Parks Association. During the First World War he served in a volunteer capacity as Washington State director of the Public Service Reserve which registered for public service a labor force of 200,000 citizens who for various reasons were not available for active duty in the Armed Forces.

Robert Moran's family comprised, in addition to his wife, three sons (John M., Frank G., and Malcolm E. Moran), a daughter (Nellie), and an adopted daughter (Mary) who was his niece. The oldest son, John Moran, after serving as his father's construction foreman at Rosario, headed the Moran Manufacturing Company, a Seattle manufactory and machinery dealership. In 1914 Frank G. Moran founded and became headmaster of two well known schools for boys and young men in the Seattle area.

DEVELOPMENT OF ROSARIO

In his autobiography, published serially in The Marine Digest 1942-1943, Moran explained that by 1904 the strain of a lifetime of hard work, full responsibility for managing the family corporation, and the complexities of the U. S. Navy's battleship Nebraska contract had taken their toll both physically and mentally. He wintered in Santa Barbara, California and thereafter made several trips abroad to consult with European specialists, on whose advice, in 1906, and at the age of forty-nine, he utterly retired from the business world and left his home in Seattle. In 1905 he had acquired holdings at Newhall, on Orcas Island in the San Juan Archipelago, and planned the construction of a private estate there. In 1906 the Moran Brothers Company shipbuilding enterprise was sold to a New York concern which reorganized it as the Moran Company. Moran apparently retained the Nebraska contract, however, and personally superintended the completion of her outfitting in that year.

His state of health notwithstanding, Moran approached the development of Rosario with the same thoroughness and zeal he had applied to his business. He set up shops in which metals and whole imported hardwood logs could be worked on the site. Moran's granddaughter, Mrs. John F. Burns, recalls that plans for a two-story house of frame construction by a professional architect were commissioned at first, but these were laid aside, and Moran developed his own concept and was his own designer thereafter. Mrs. Burns reports that the original house plans drawn by Moran in her collection are dated 1906. Moran's oldest son, John M. Moran (Mrs. Burns' father) served as his father's construction foreman. A craftsman named Miller was in charge of woodworking. Construction of the main lodge extended over a three-year period. A note by Mrs. Robert Moran in the original guest register documents that the family officially took up residence in the lodge June 21, 1909.

As Moran regained his health, certain refinements to the main building and its landscape, including outdoor lighting and the lagoon, and construction of concrete buildings continued through 1925. The total cost of the development has been given as $1,500,000. The motive for this protracted development was revealed in Moran's autobiography. "Building 'Rosario' was simply a continuance of my life-long urge to be continually pushing ahead on industrial construction work," he said. Moran also constructed a yacht, Sanwan, at Rosario with the intention of commencing a world cruise, but the prospect of still further construction projects on shore proved more compelling. He turned his attention to development of a large wilderness parcel of over 5,000 acres which he had set aside and delivered into the public domain. In the park, formally dedicated as Moran State Park in 1921, he built miles of roads and trails, concrete bridges and the gateway arch with its American eagle finial and bulkhead swagged with anchor chain - all at his own cost. Moran's pride in the park as a unique beauty spot was entirely justified. Its crowning feature is Mount Constitution, an eminence 2,405 feet in elevation from which may be obtained a 360° panorama without equal of the San Juans, the Strait of Georgia, Rosario Strait, and the peaks of the Cascade Range on the mainland of British Columbia and Washington. The effect of the view was heightened when a masonry observation tower designed by Seattle architect Ellsworth Storey was constructed at the summit under state and federal auspices and completed in 1940.

LIFE AT ROSARIO

Upon its completion, Rosario was the showplace of the San Juan Islands. Moran was hospitable and no doubt enjoyed receiving the guests who made their way there from Seattle and other parts of the country by private yacht. It was an eighty mile trip by inland water route from Seattle. Nevertheless, as has been seen, the estate was not developed to be a showplace so much as it was a means of absorbing Moran's constructive tendencies and gainfully employing others in the process. Rosario was remote from hectic urban life, but it was by no means isolated. It was connected to the Pacific Telephone and Telegraph lines on the mainland via a five mile private hookup line to the Eastsound office. Moreover, Orcas Island had regular ferry service from mainland Washington and Vancouver Island to Orcas, the landing point fourteen miles distant by county road. There was regular mail service from Seattle and Bellingham, and Rosario had its own postmaster.

Rosario was self-sufficient for its water and power. The source of water for domestic use other than that required to run the electrical generator and for irrigation was a spring which flowed at an elevation of 700 feet from the base of Mount Constitution. The pure spring water was piped to a concrete reservoir buried in the ground at an elevation of 100 feet. Hydroelectric power harnessed from the outfalls of Cascade and Mountain Lakes operated lighting, cooking and refrigeration systems, overhead line shafting for the laundry and shop machinery, and heated bedrooms in the main lodge. What wood was burned in fireplaces was driftwood, as the conservation-minded Moran forbade the cutting of forest wood for that purpose. Livestock on the estate included dairy cows and horses. Hay fields, orchard stock and vegetable gardens were tended by employees of the estate.

A variety of leisure-time activities could be pursued at Rosario, including horse-back riding, hiking, camping, trout fishing, swimming, and croquet on the rear lawn. Reportedly,

one of Moran's chief pleasures was operating his player pipe organ for the entertainment of guests. The style of life at Rosario was rustic in the most elegant terms. When darkness fell upon the water and the quiet island wilderness, the play of outdoor lighting around the large house and its grounds must have made Rosario seem a festive oasis indeed.

EVENTS FOLLOWING SALE OF THE ESTATE IN 1938

Robert Moran providently made preparations to sell the 1339 acres remaining in his private estate as early as 1932, at which time he had reached the age of seventy-five. In that year he published an album and text, entitled Rosario: An Estate in the Pacific Northwest, which promoted the property and its island setting. In it he stated that his purpose in offering the property for sale was to avoid passing it down to his descendents "in a division of small stock interests, no one of which would be financially able to carry the expense of the occupancy or maintenance of the property". It was his belief that because of the water rights and power system he had developed the property could be more "cheaply and advantageously" operated as a whole. Naturally, the prospective buyer would have to have considerable means, and in the depths of the Depression the number of satisfactory offers was limited. Finally, between 1938 and 1940 the sale, reportedly for a mere $50,000, was transacted with Donald L. Rheem, a wealthy out-of-state industrialist who proved to be the estate's long-term interim owner and the one who carried out some substantial improvements. Moran, then a widower, took up residence in a smaller home he had built at White Beach near the ferry landing settlement of Orcas on the southwest side of the island. Rosario changed hands once again in the 1950s before 1320 acres were acquired for resort development by the present owner in 1959.

It was not until after the Second World War and the advent of recreational boating that the shoal-free San Juan Archipelago began to be the widely popular vacation spot it is today. From 1959 to the present, facilities at Rosario Resort Hotel and Convention Center, catering to boaters and motorists alike, have been expanded steadily. Certain interior decor and rental unit titles allude to the historic theme of Spanish exploration off the Northwest Coast of America. To finance such projects as the construction of outdoor swimming pools and satellite rental units it has been necessary to sell some of the platted sections on the restort's periphery. There are at present some 975 acres remaining under single ownership. Future needs, such as that for a sewage treatment plant, are expected to necessitate further sales, but the core of the resort will be preserved intact.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Interview, May 12, 1976, telephone: Mrs. John F. Burns, Orcas, ganddaughter of Robert Moran, builder of Rosario estate, and daughter of John Moran, construction foreman. See also correspondence dated June 17, 1976. Mrs. Burns holds house plans, photos and Moran correspondence.

Interview, May 12, 1976: Gilbert H. Geiser, Owner and Manager, Rosario Resort Hotel since

continued on attached page

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 10 acres

UTM REFERENCES

	ZONE	EASTING	NORTHING
A			
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE: Elisabeth Walton Potter, Historic Preservation Specialist

ORGANIZATION: Office of Archaeology and Historic Preservation, Washington State Parks and Recreation Commission

DATE: July 1976

STREET & NUMBER: P. O. Box 1128

TELEPHONE: (206) 753-4117

CITY OR TOWN: Olympia

STATE: Washington 98504

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 888-445

1960. Owner's holdings include photographs, Moran library and miscellaneous memorabilia.

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Kertis, Mabel, Inventory Form, Washington State Inventory of Historic Places, October 1974.

Kertis, Mabel, correspondence (undated, received 7-23-76) concerning the predecessor settlement of Newhall based on items published in the Friday Harbor San Juan Islander in 1901. Mrs. Kertis lives in Eastsound, where she is a member of the Orcas Island Historical Society.

Form No 10-301a
(Rev 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES PROPERTY PHOTOGRAPH FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- ENCLOSE WITH PHOTOGRAPH

1 NAME

HISTORIC Rosario

AND/OR COMMON

2 LOCATION

CITY, TOWN Orcas Island ___VICINITY OF COUNTY San Juan STATE Washington

3 PHOTO REFERENCE

PHOTO CREDIT Asahel Curtis DATE OF PHOTO circa 1930?

copy NEGATIVE FILED AT Seattle Historical Society, 2161 East Hamlin Street, Seattle, WA 98112
Original published in Rosario: An Estate in the Pacific Northwest (undated, circa 1932).

4 IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC. IF DISTRICT, GIVE BUILDING NAME & STREET PHOTO NO. 1 of 4

General view of Rosario, looking westerly at: dock in Cascade Bay; warehouse and shop building, lagoon, employees bungalows, concrete pavilion, barn, the main lodge on Rosario Point; and, beyond, the body of water known as East Sound and the westerly reach of Orcas Island.

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1 NAME

HISTORIC Rosario

AND/OR COMMON

2 LOCATION

CITY, TOWN Orcas Island —VICINITY OF COUNTY San Juan STATE Washington

3 PHOTO REFERENCE

PHOTO CREDIT uncertain DATE OF PHOTO circa 1930?

copy
NEGATIVE FILED AT Seattle Historical Society, 2161 East Hamlin Street, Seattle, WA 98112
Original published in Rosario: An Estate in the Pacific Northwest (undated, circa 1932).

4 IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC. IF DISTRICT, GIVE BUILDING NAME & STREET PHOTO NO. 2 of 4

Rosario Lodge, northwest face, with East Sound in background.

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TYPE ALL ENTRIES --ENCLOSE WITH PHOTOGRAPH

1 NAME

HISTORIC Rosario

AND/OR COMMON

2 LOCATION

CITY, TOWN Orcas Island ____VICINITY OF COUNTY San Juan STATE Washington

3 PHOTO REFERENCE

PHOTO CREDIT Elisabeth Potter DATE OF PHOTO May 1976

NEGATIVE FILED AT Office of Archaeology and Historic Preservation
P. O. Box 1128, Olympia, WA 98504

4 IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC. IF DISTRICT, GIVE BUILDING NAME & STREET PHOTO NO. 3 of 4

Rosario Lodge, Northwest face.

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TYPE ALL ENTRIES --ENCLOSE WITH PHOTOGRAPH

1 NAME

HISTORIC Rosario

AND/OR COMMON

2 LOCATION

CITY, TOWN Orcas Island —VICINITY OF COUNTY San Juan STATE Washington

3 PHOTO REFERENCE

PHOTO CREDIT Elisabeth Potter DATE OF PHOTO May 1976

NEGATIVE FILED AT Office of Archaeology and Historic Preservation
P. O. Box 1128, Olympia, WA 98504

4 IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC. IF DISTRICT, GIVE BUILDING NAME & STREET PHOTO NO. 4 of 4

Rosario Lodge, Southeast face from swimming pool terrace, showing restaurant wing added in 1968.

RECEIVED
JUL 29 1976
ARCHAEOLOGY AND
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(Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
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NATIONAL REGISTER OF HISTORIC PLACES PROPERTY MAP FORM

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RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- ENCLOSE WITH MAP

1 NAME

HISTORIC Rosario

AND/OR COMMON

2 LOCATION

CITY, TOWN Orcas Island ___VICINITY OF COUNTY San Juan STATE Washington

3 MAP REFERENCE

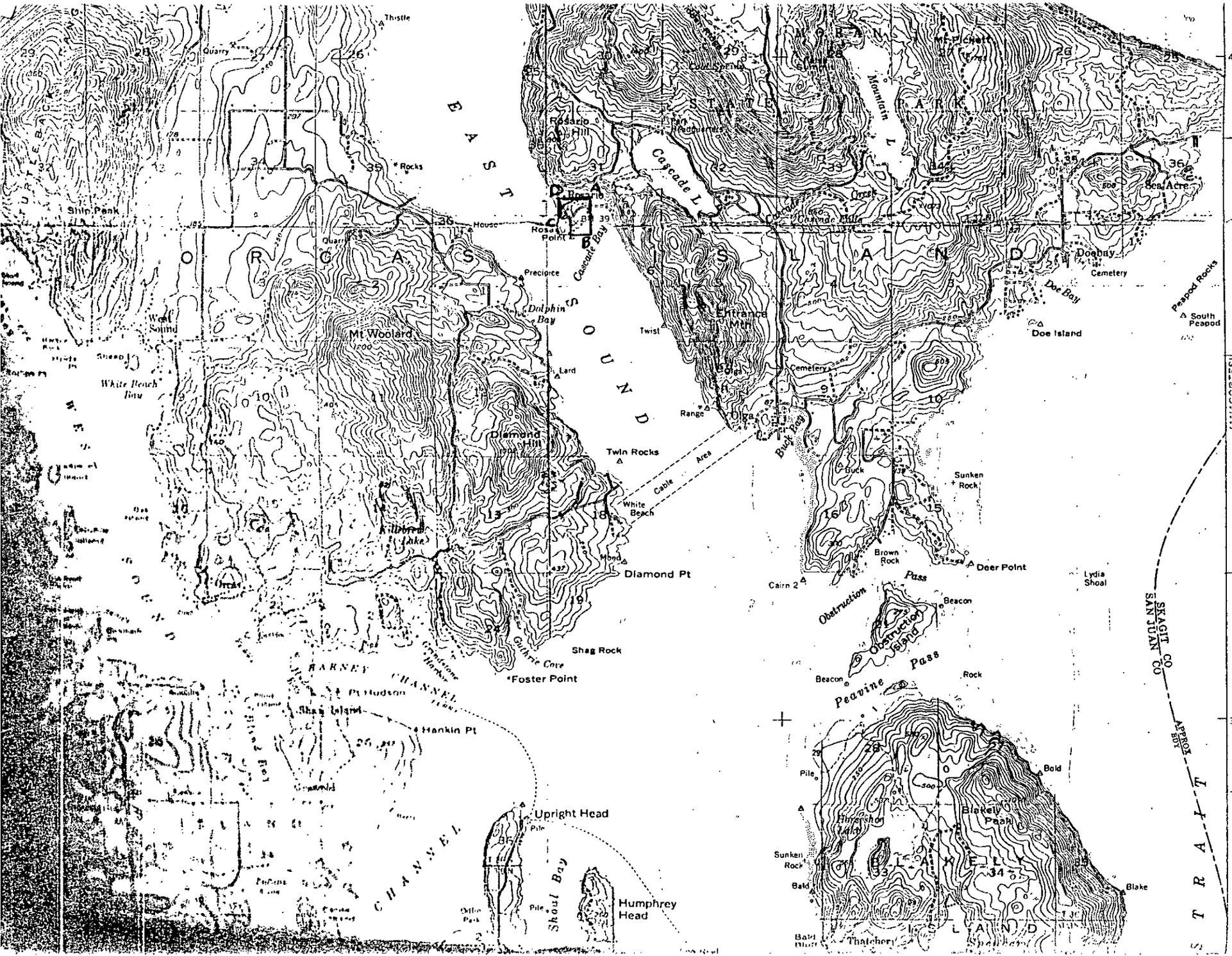
SOURCE U.S.G.S. (Topographic) Orcas Island, Washington Quadrangle

SCALE 1:62500 DATE 1957

4 REQUIREMENTS

TO BE INCLUDED ON ALL MAPS

1. PROPERTY BOUNDARIES
2. NORTH ARROW
3. UTM REFERENCES


ROSARIO
HISTORIC DISTRICT
UTM REFERENCES
A 509625 5388250
B 509625 5387725
C 509175 5387725
D 509175 5388250
ZONE 10
EAST SOUND
ORCAS ISLAND
MORAN STATE PARK
Rosario
Rosario Point
Cascade Bay
Mt Woolard
Diamond Hill
Diamond Pt
Foster Point
Shag Rock
Twin Rocks
White Beach
Killbrae Lake
Entrance Mtn
Olga
Buck Bay
Doe Island
Doe Bay
Deer Point
Obstruction Pass
Obstruction Island
Peavine Pass
Lydia Shoal
Sunken Rock
Brown Rock
Peapod Rocks
South Peapod
Dolphin Bay
Precipice
Mt Pickett
Mountain Lake
Cascade Lake
Cascade Falls
Sea Acre
Doebay Cemetery
Olga Cemetery
Ship Peak
White Beach Bay
West Sound
Blakely Island
Blakely Peak
Upright Head
Humphrey Head
Shoal Bay
Hankin Pt
Pt Hudson
Shaw Island
Barnes Island
Thatcher
Speiden
Blake
Bold
Pile
Rock
Beacon
Cairn 2
Range
Twist
Lard
Sheep
Quarry
Thistle
House
Rocks
Gothic Cove
Grindstone Harbor
Killbrae Lake
Haro Strait
San Juan Co
Skagit Co
Mt Vernon
Bellingham
Aberdeen
Seattle
Tacoma
Olympia
Spokane
Yakima
Portland
Astoria
Eugene
Salem
Medford
Klamath Falls
Boise
Pendleton
Bend
Redmond
Prineville
Burns
Ontario
Vancouver
Victoria
Nanaimo
Port Angeles
Port Townsend
Everett
Wenatchee
Ellensburg
Kennewick
Walla Walla
Lewiston
Moscow
Pullman
Coeur d'Alene
Spokane
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Kennewick
Walla Walla
Lewiston
Moscow
Pullman
Coeur d'Alene


Lilla Frances
ORCAS
WN 9844 Y

Photos resubmitted

ROSARIO, ORCAS ISLAND, SAN JUAN COUNTY, WASHINGTON

ASAHEL CURTIS PHOTOGRAPH CA. 1930

NOTE: LODGE, SIDEHILL BARN, EMPLOYEES COTTAGES, LAGOON AND CONCRETE ARCHED BRIDGE (1915), BOAT DOCK, CIRC. CONC. PLAYHOUSE, CONC. SHOP BUILDING (1925).

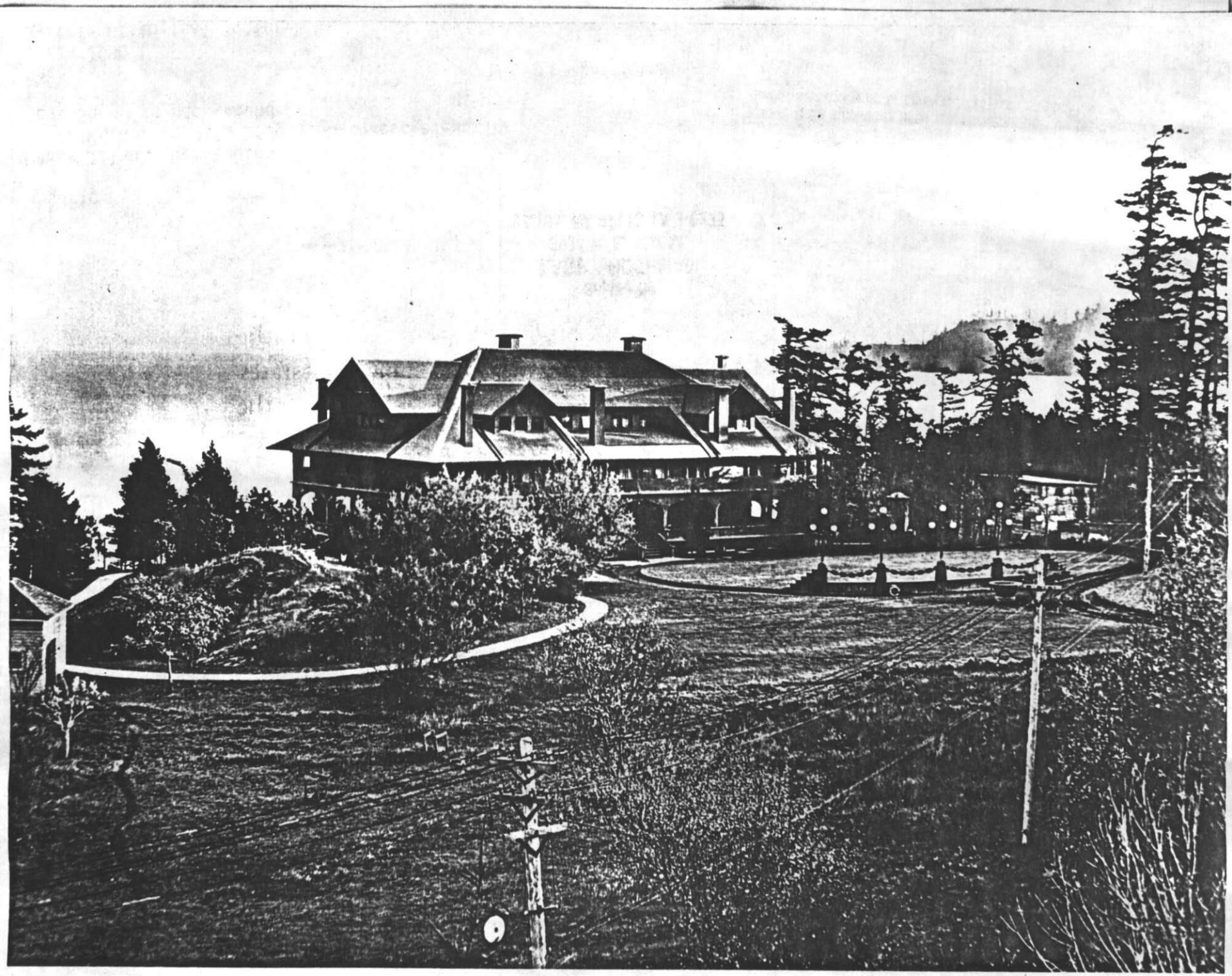
Rosario

Orcas Island, Washington
View of resort complex, looking west toward
East Sound

'O: AN ASTATE IN THE PACIFIC NORTHWEST

Asahel Curtis
circa 1930
Seattle Historical Society

1 of 10



ROSARIO, ORCAS ISLAND, SAN JUAN COUNTY, WASHINGTON

CA. 1930

NORTHWEST FACE

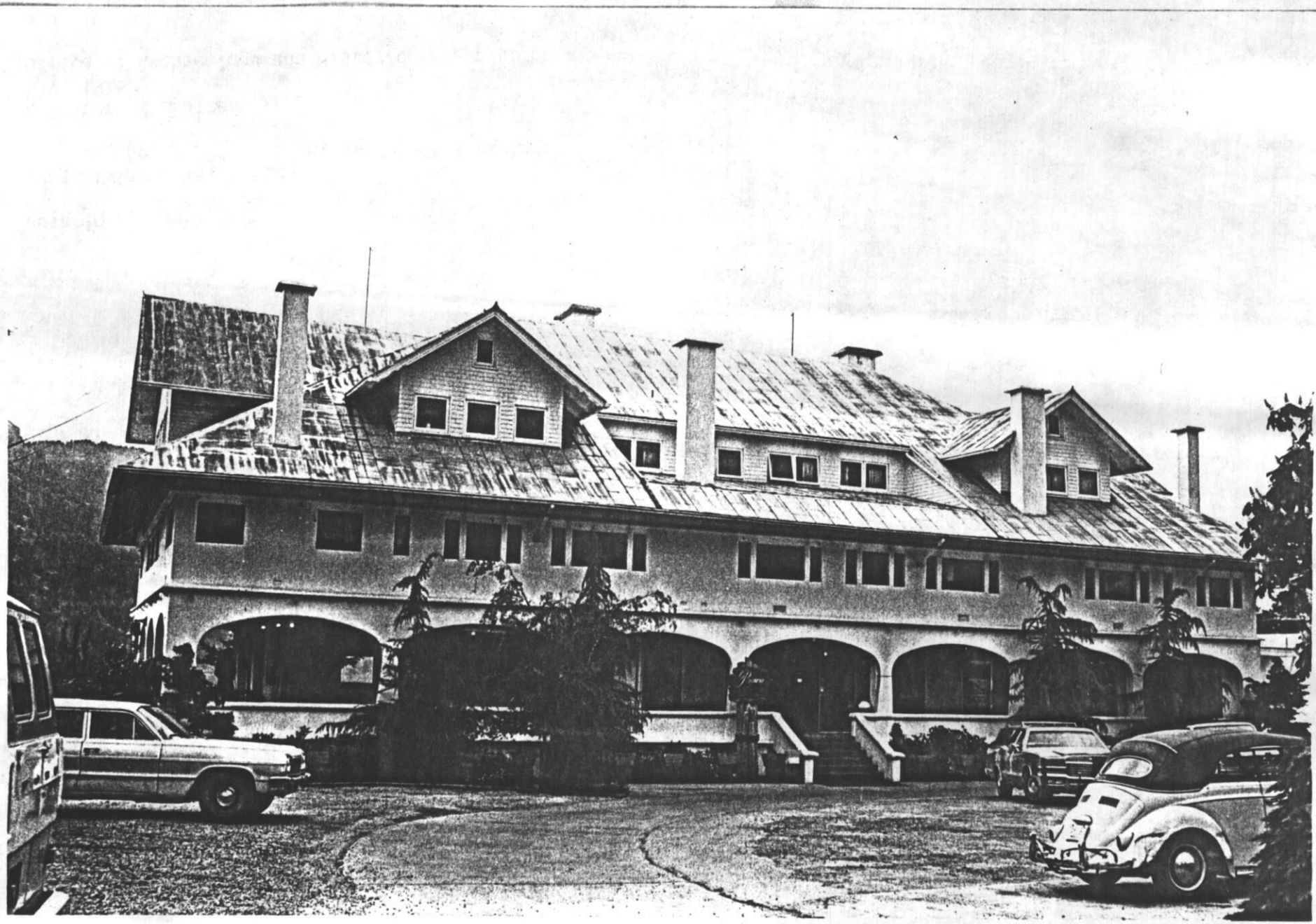
COPIED FROM: ROSARIO: AN ESTATE IN THE PACIFIC NORTHWEST. (N.D., CIRCA 1932).

Rosario

Orcas Island, Washington
Building No. 1, Main Lodge; Northwest elevation
East Sound in background

Uncertain
circa 1930
Seattle Historical Society

2 of 10

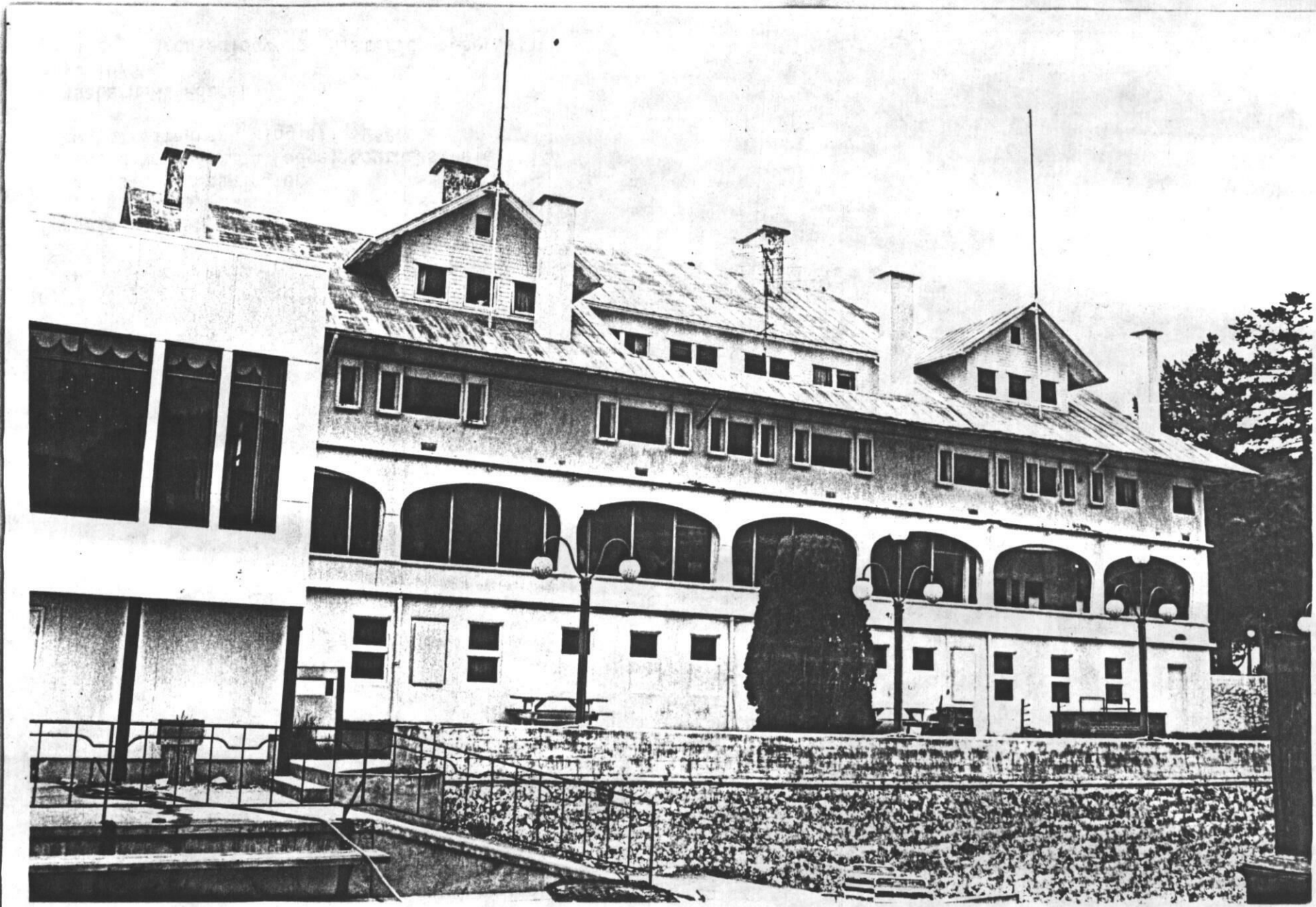


Rosario

Orcas Island, Washington
Building No. 1, Main Lodge; Northwest elevation

Elisabeth W. Potter
May, 1976
Office of Archaeology and Historic Preservation

3 of 10

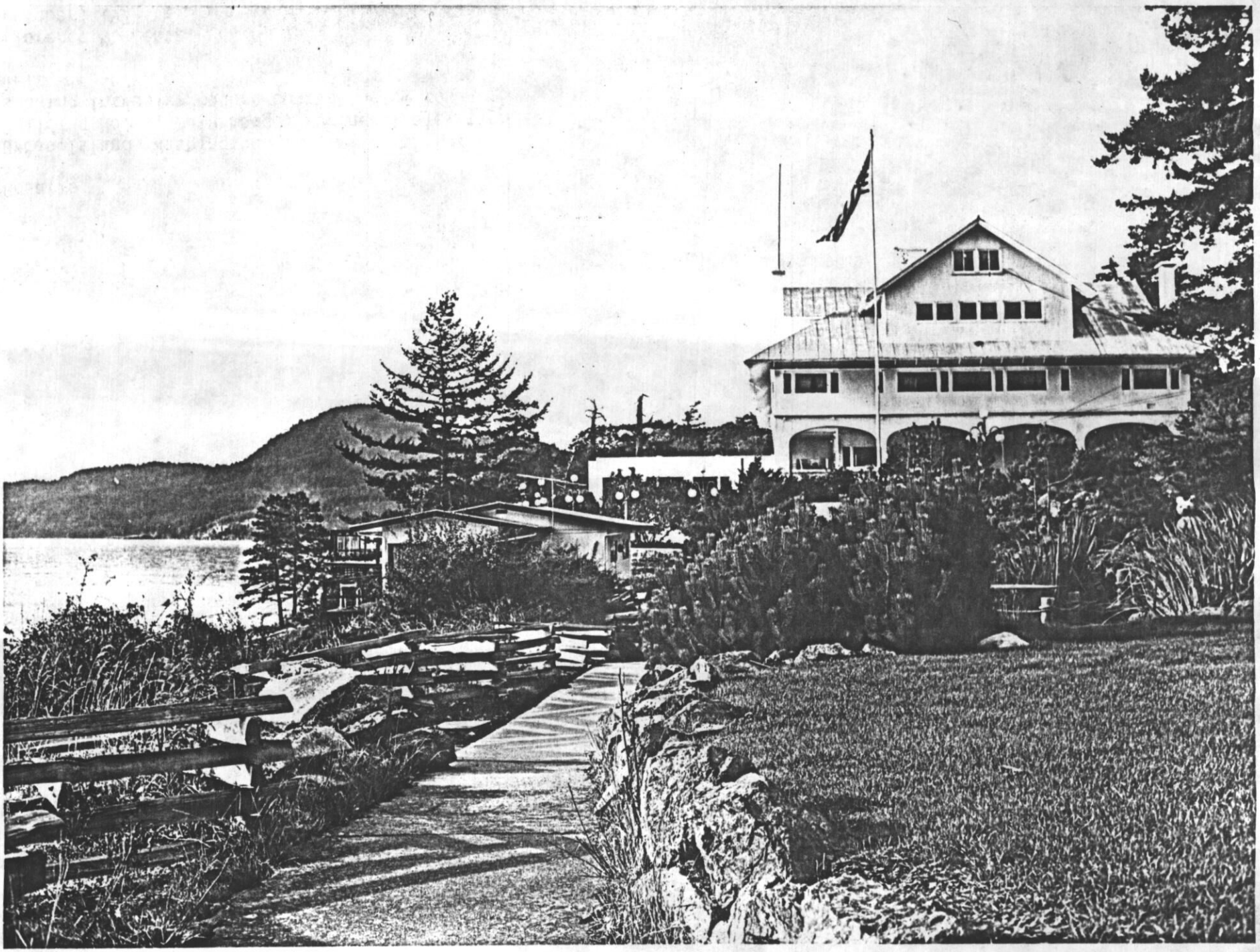


Rosario

Orcas Island, Washington
Building No. 1, Main Lodge; Southeast elevation
showing restaurant wing off 1968

Elisabeth W. Potter
May, 1976
Office of Archaeology and Historic Preservation

4 of 10



Rosario

Orcas,Island, Washington
Building No. 1, Main Lodge; northeast elevation showing intrusive modern cottage below to left

Florence K. Lentz,
October, 1977
Office of Archaeology and Historic Preservation

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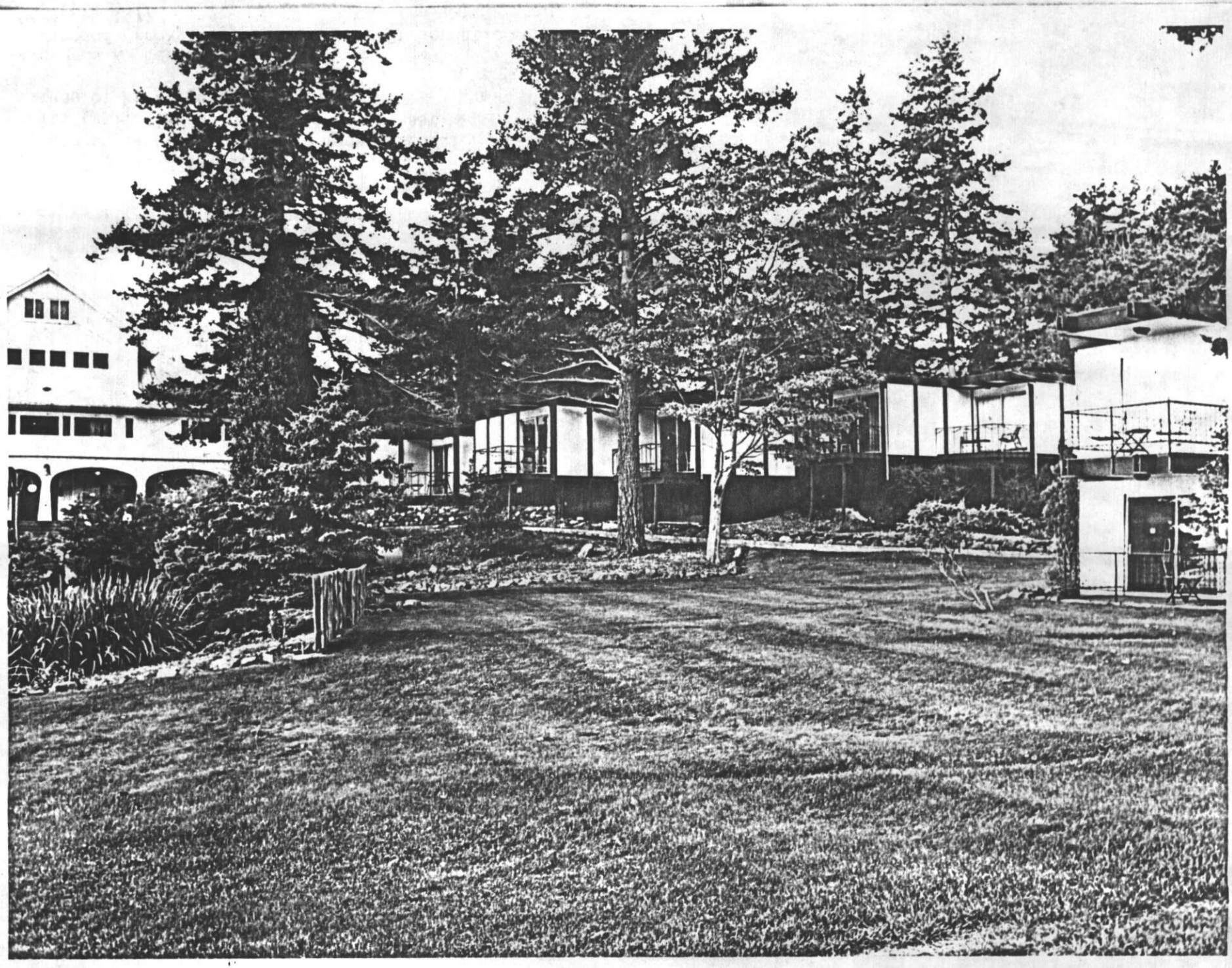

Rosario

Orcas Island, Washington
View west, showing intrusive modern rental units (Villas), and portion of northeast facade of Main Lodge (Building No. 1).

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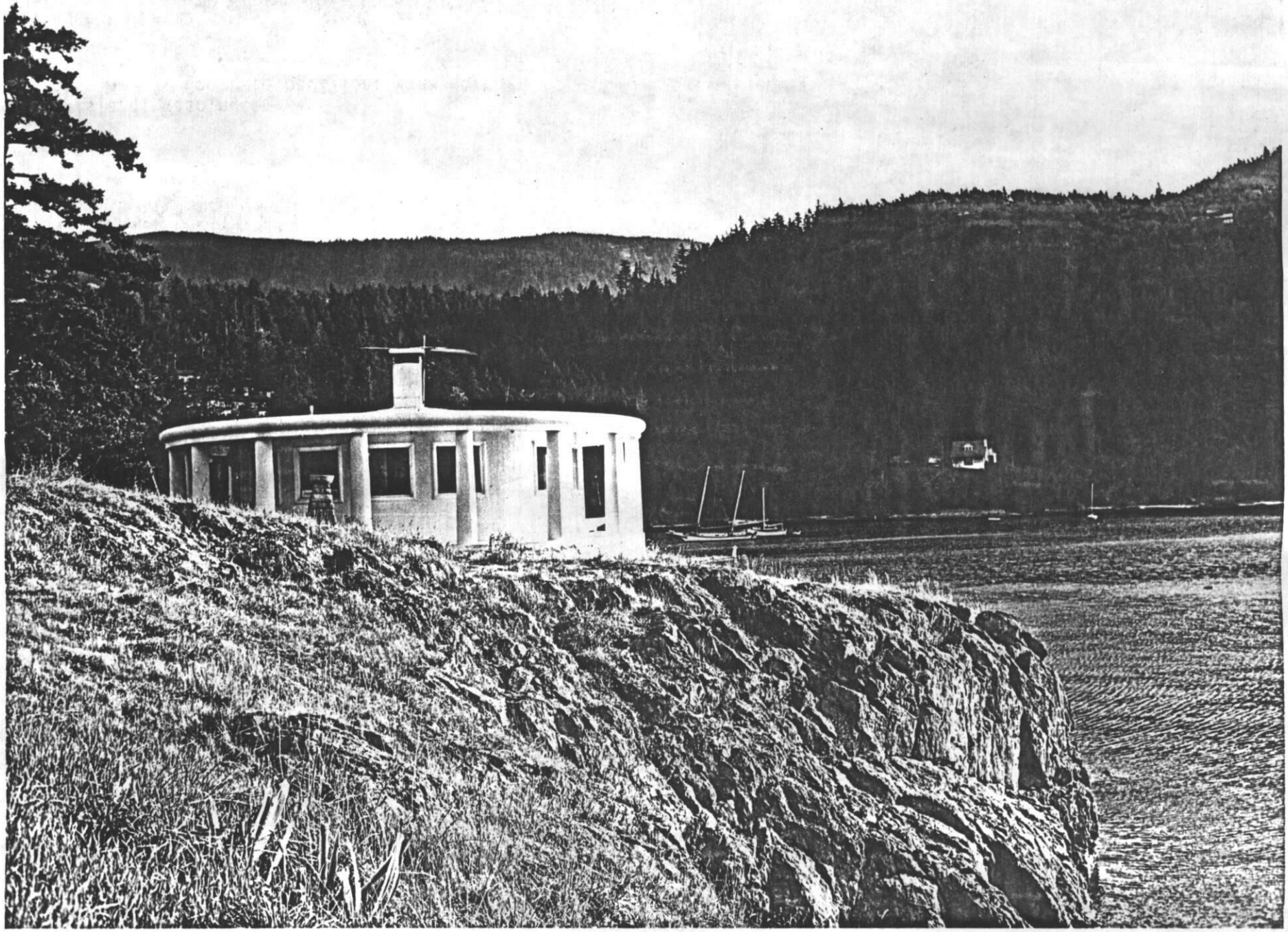

Rosaria

Orcas Island, Washington
Building No. 4, Concrete pavilion; View northeast

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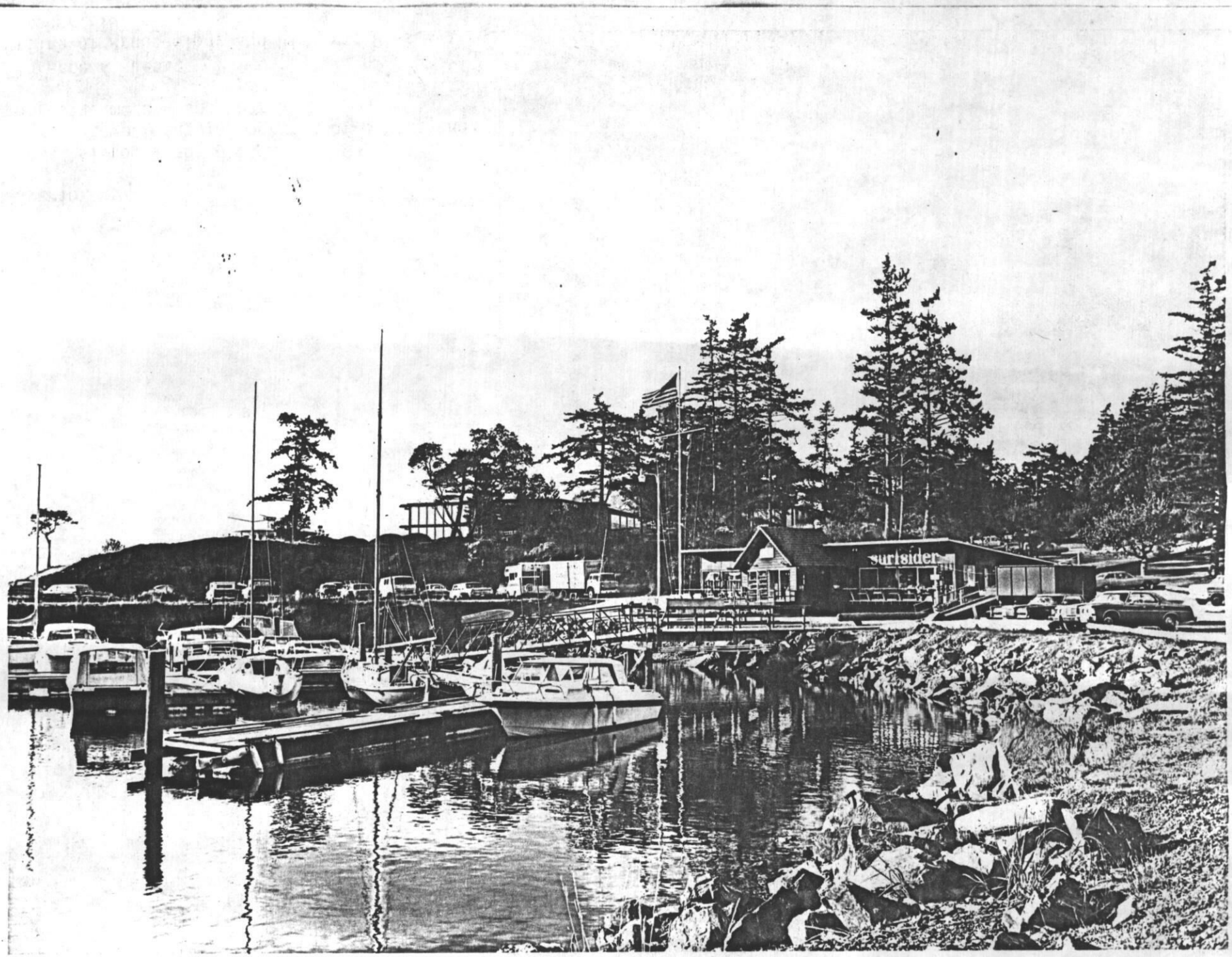
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Rosario

Orcas Island, Washington
View southwest showing portion of marina and
intrusive modern snackbar

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October, 1977

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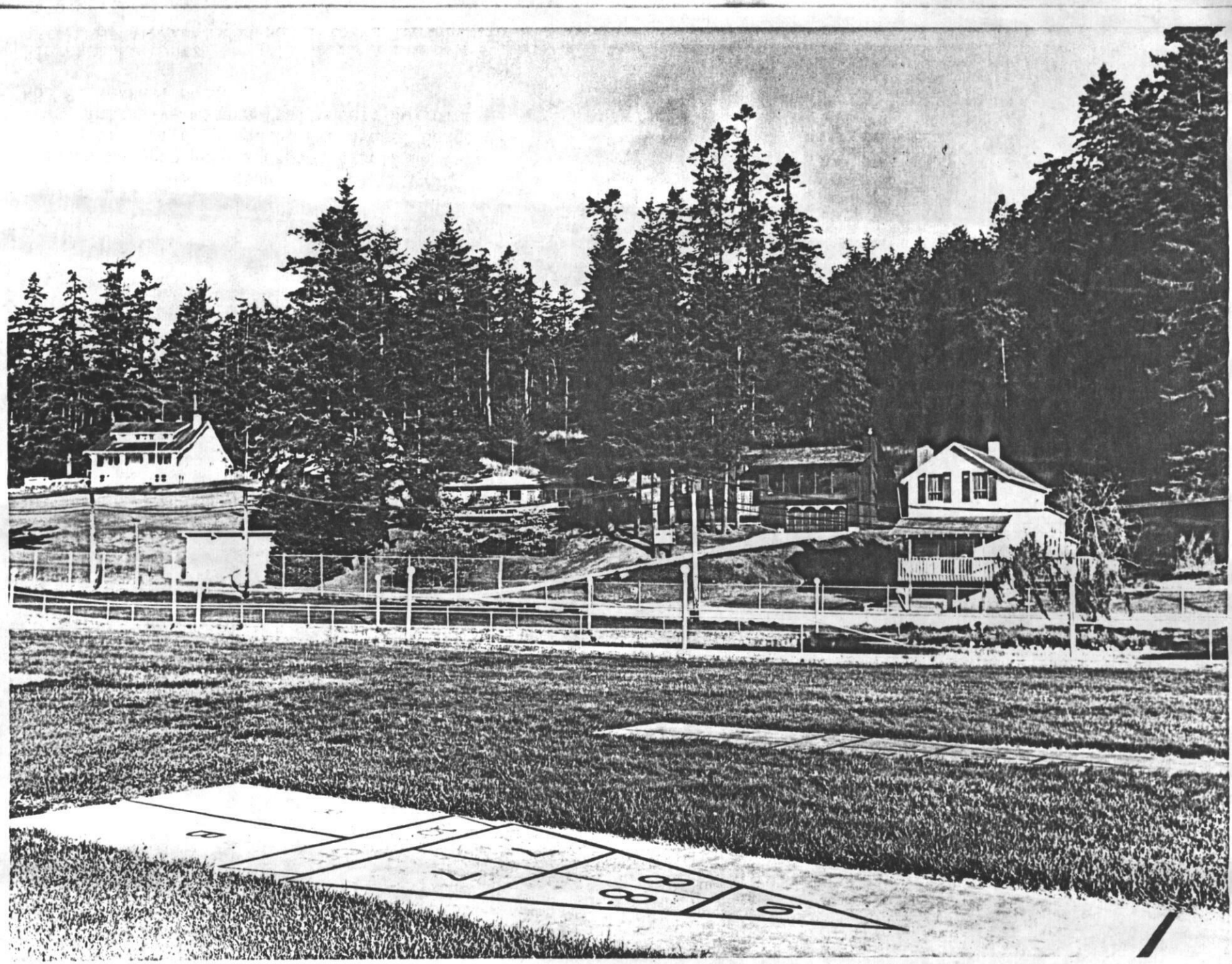

Rosario

Orcas Island, Washington
View north from across Lagoon (No. 7). Left to right: Building No. 6, Employees' Bungalows; intrusive modern residences; Building No. 8, Newhall House.

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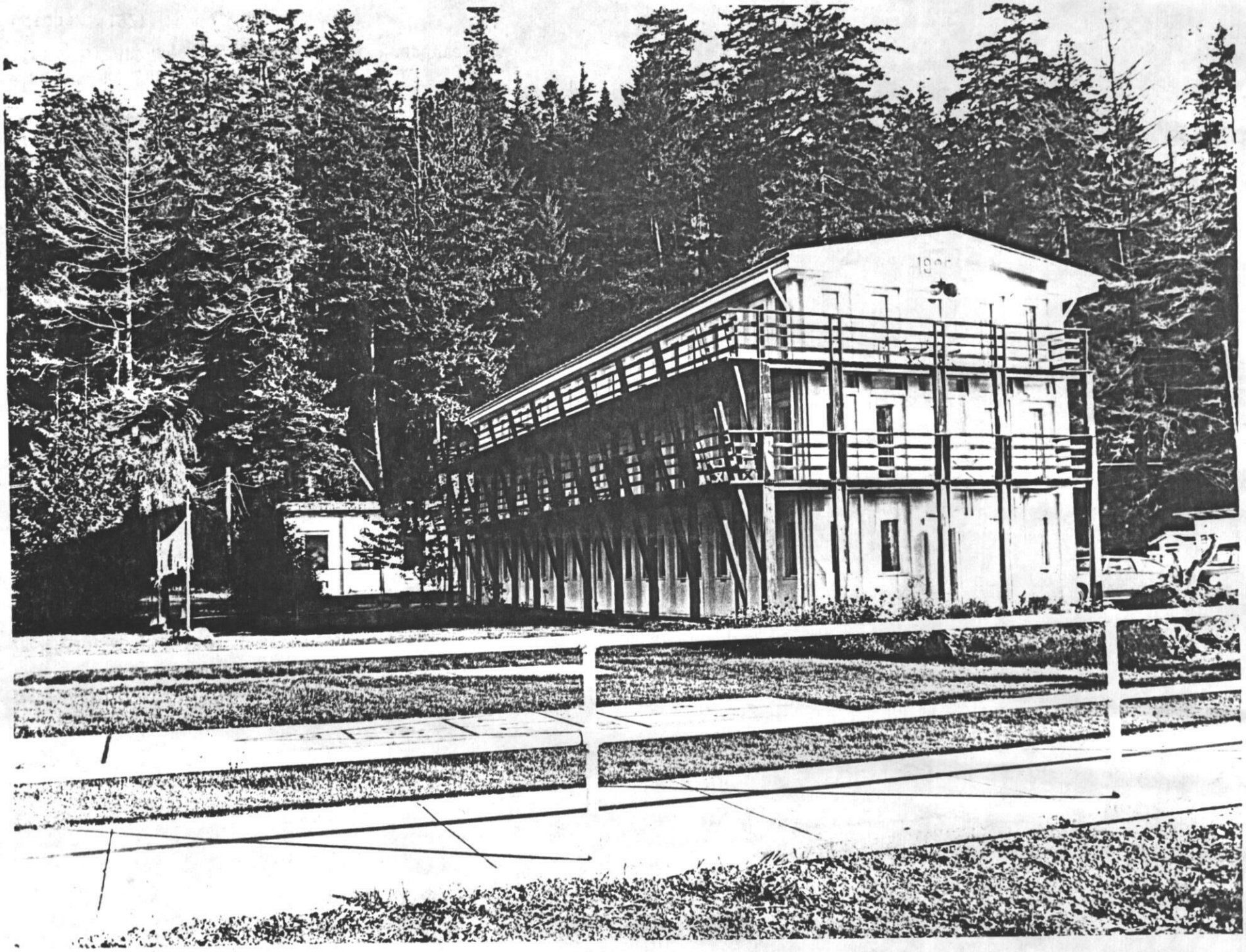

Rosario

Orcas Island, Washington
View north; Building No. 10, Concrete Shop and Warehouse in foreground; Building No. 9, Concrete Powerhouse in background.

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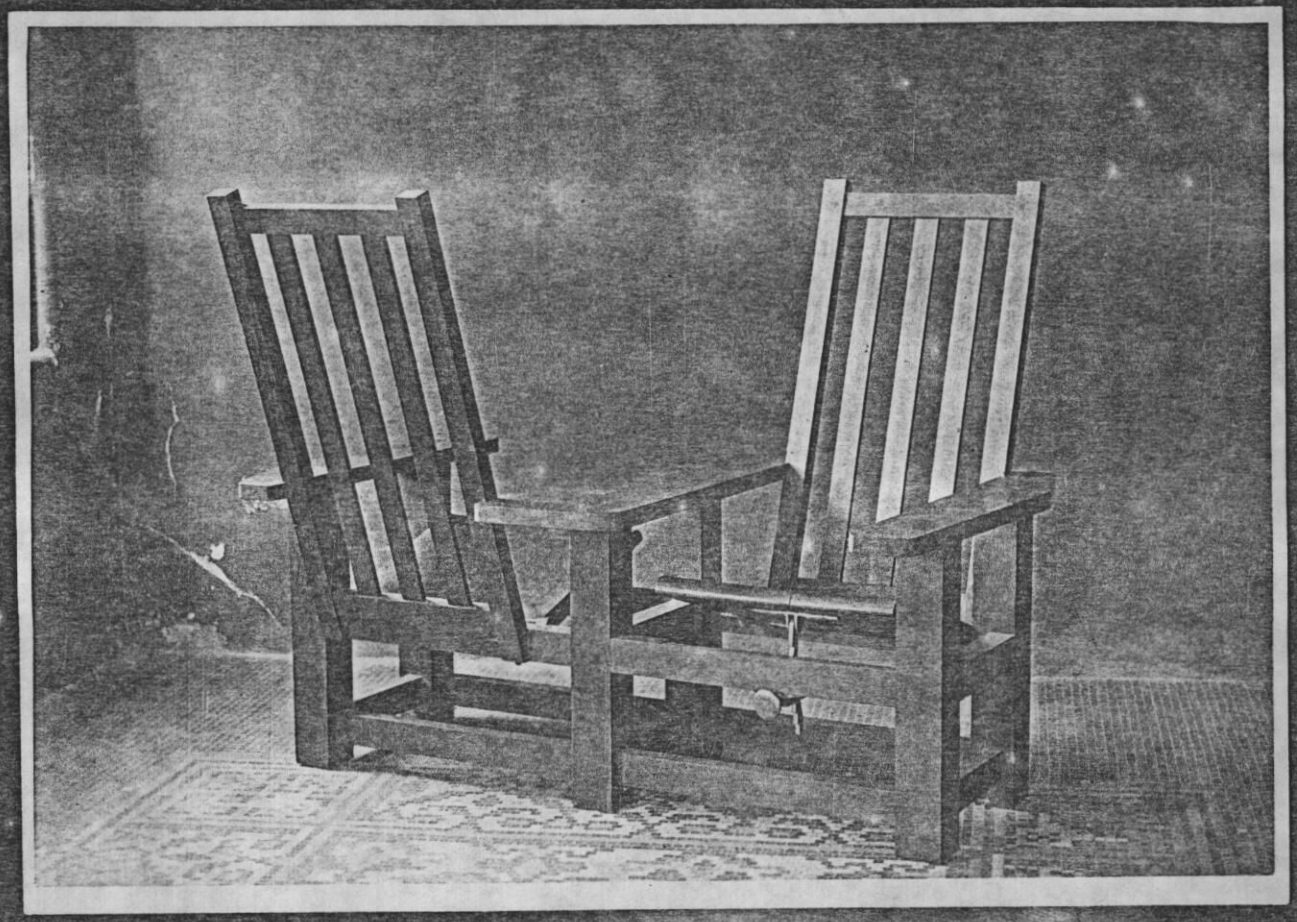
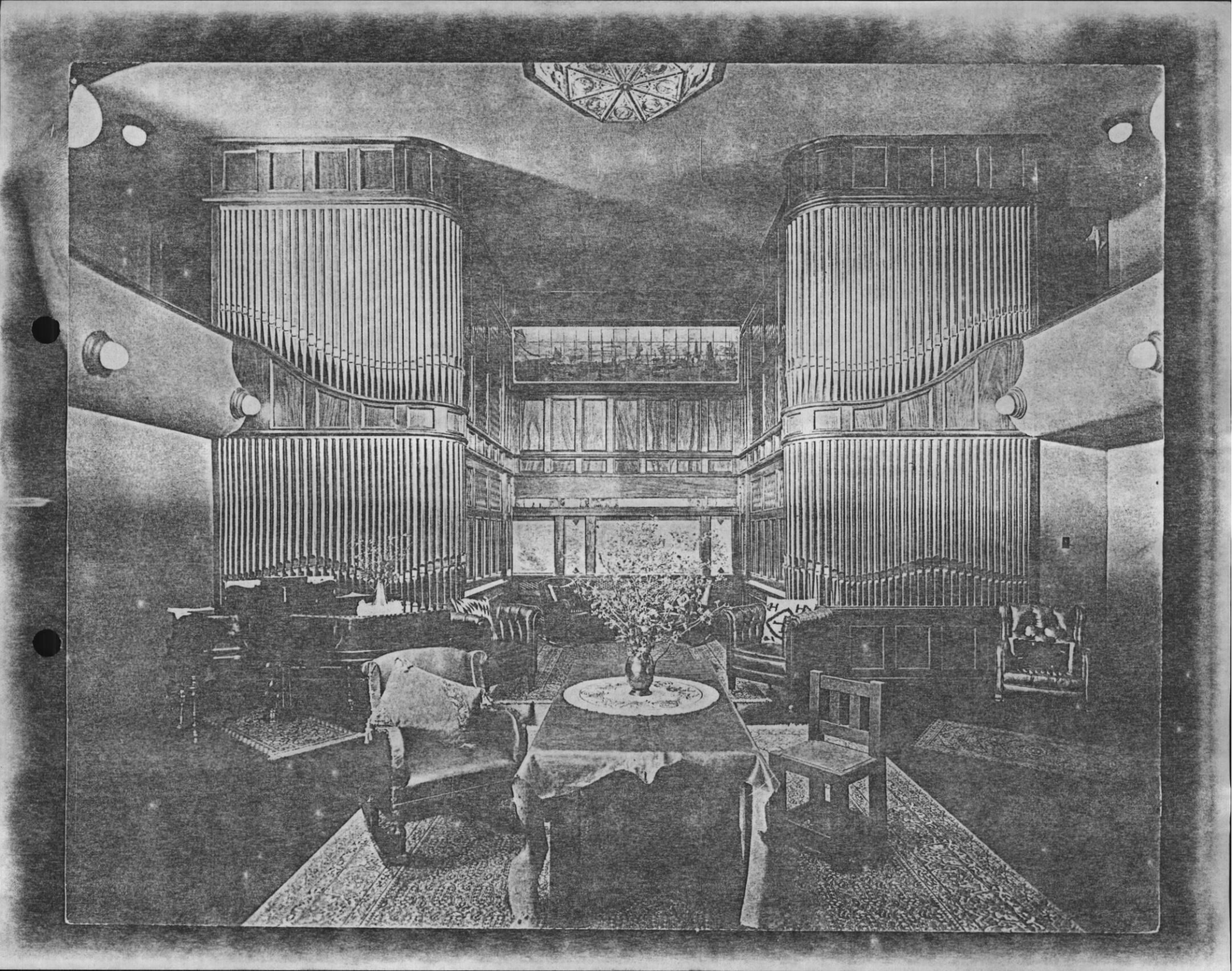



ROBERT MORAN
ROSARIO


ROBERT MORAN
ROSARIO

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ROSARIO


ROBERT MORAN
ROSARIO

APPENDIX B

ARCHAEOLOGICAL ASSESSMENT

ARCHAEOLOGICAL ASSESSMENT FOR THE ROSARIO RESORT MASTER PLAN, SAN JUAN COUNTY, WASHINGTON

Report Prepared for

The SE Group
3245 146th Place SE, Suite 360
Bellevue, Washington

By

Robert Kopperl, Ph.D.

July 5, 2005

NWAA Report WA 05-56

CONTAINS CONFIDENTIAL INFORMATION – NOT FOR GENERAL DISTRIBUTION

Northwest Archaeological Associates, Inc.
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

This Appendix has been included to identify that a cultural resources report for this project was prepared by a professional archaeologist. The report is referenced in the Rosario Resort FEIS but is not being published in full because the cultural resources discipline report contains sensitive information about the location and content of several archaeological sites. It is therefore exempt from public disclosure under RCW 42.56.300, which states that “records, maps, or other information identifying the location of archaeological sites in order to avoid the looting or depredation of such sites are exempt from disclosure under this chapter”. For additional information about access to this report, please contact the Washington State Department of Archaeology and Historic Preservation, 1063 South Capitol Way, Suite 106, Olympia, WA 98501, (360) 586-3065.

APPENDIX C

THE CONCURRENCY ANALYSIS

(PREPARED IN 2004 FOR VOLUME II OF THE ROSARIO RESORT MASTER PLAN)

1.0 Introduction

As required by the San Juan County Comprehensive Plan (SJCCP), this analysis addresses potential changes to existing utility services as a result of the proposed Rosario Resort Master Plan (RMP) phased redevelopment. The SJCCP requires that capital facilities infrastructure and service capacity be available concurrent with new growth (Section 7.1.D). Therefore, changes to existing capital facilities as a result of new growth that would occur under the RMP are evaluated in the following sections to determine: 1) additional service demands, 2) potential changes to existing levels of service, and 3) potential infrastructure improvements that may alleviate or avoid impacts to services.

Resort expansion proposed by the RMP is anticipated to occur within at least two phases as determined by financing, market absorption, construction efficiency, Resort operations, regulatory requirements, and other variables. While the timing of redevelopment is flexible, for purposes of this analysis Phase 1 of the proposed Resort expansion is assumed to occur between 2005 and 2010 while Phase 2 is assumed to begin by 2010. Concurrency will be required only for the capital facilities and services that are designated as "Category A" facilities in the SJCCP. These facilities include Rosario Utilities water systems, sewage treatment facilities, and transportation networks that serve the Rosario Master Planned Resort (MPR). Concurrency requirements, which are implemented through the issuance (or denial) of development permits by the county, are addressed in the following sections.

2.0 Water

Domestic water will continue to be provided by Rosario Utilities, a utility company wholly owned by Oly Rose, LLC. that provides potable water treatment to the Resort and a number of other customers within the utility's service area.

2.1 Existing Water Use

The two largest water users in the Rosario Utilities water system include Rosario Resort and the Cascade Harbor Inn. In 2001, the Rosario Resort consumed approximately 22,533 gallons per day (gpd), and Cascade Harbor Inn consumed approximately 2,717 gpd. Together, these users accounted for approximately 34 percent of the total Rosario Utilities' water production. Lack of individual meters at Rosario Resort has prevented empirical data on water usage by specific components such as the restaurants, spa, conference center, etc. As a result, water consumption data from these combined uses remains aggregated throughout this analysis.

Equivalent Residential Units (ERUs) is one way to express water use by non-residential customers for comparison with typical water use by residential customers. ERUs are calculated by dividing the total volume of water utilized in the single-family customer class by the total number of single-family residential connections. This number defines the average single-family residential water use. The volume of water used by other

customer classes can then be divided by the average single-family residential water use to determine the equivalent residential units utilized by the other customer classes.

The ERUs for all customer classes are shown in Table 2.1-1. The average single-family residential water use, including wholesale customers, for Rosario Utilities in 2001 (which is equivalent to one ERU) was 193 gpd (or 49,410 gpd/256 single-family connections).

Table 2.1-1 Rosario Utilities Existing Water Use, Year 2001

Water User	2001 Average Day Consumption (gpd)	Number of Units	ERUs[1]	Number of ERUs / Unit
Rosario Resort	22,533	127	118	NA[2]
Cascade Harbor Inn	2,717	48	14	0.29[3]
Residential (including wholesale customers)	48,634	251	251	1.00
Total	**73,884**	**426**	**383**	

Note: 1. ERU = 193 gpd, the average year 2001 metered consumption by a single-family residential household.
2. ERUs per unit are not summarized because the Resort has a variety of different types of unmetered units other than hotel rooms (e.g. boat slips, conference facilities, etc.).
Source: Rosario Utilities 6-Year Water Plan, 2003
3. Based on existing usage, Cascade Harbor Inn rooms = .29

Existing water usage for the Rosario Utilities service area was 383 ERUs. The source of this water is Cascade Lake. Rosario Utilities has owned surface water rights to the lake since before development of the Resort. The total domestic annual withdrawal from Cascade Lake allowed under Rosario Utilities' water rights is 283 acre-ft/year, or an equivalent of 252,629 gpd. These water rights currently meet the existing gpd demand for water in the service area.

2.2 Projected Water Use

2.2.1 Average Projected Water Use

Rosario Utilities' 6-Year Water Plan (Water Plan) projects water usage through 2021 of the water system. The Water Plan (which was completed prior to the Resort Master Plan) assumes that the Rosario RMP expansion through Phase 2 would occur by 2012. Because completion of the Resort expansion will be primarily market-driven, the Rosario RMP assumes that the completed expansion (through Phase 2) would occur between the years of 2010 and 2020. Therefore, the following sections rely on the Water Plan's 2012 projections to indicate the completion of the Resort expansion. It should be noted that in doing so, this analysis provides conservative water use projections by accounting for third party residential water demand estimated for the years between 2007 and 2012 when completion of the Resort expansion could occur prior to 2012.

Table 2.2-1 summarizes the existing and projected additional ERUs with the expansion of the Resort and additional service area growth. The cumulative total ERUs estimated by phase is also provided.

Table 2.2-1 Existing and Projected Water Usage: 2004 – 2020

Water Usage/requirements	Existing ERUs	Total Projected ERUs		
		Phase 1	Phase 2	Total
Existing Resort and Facilities	**118**			
Rooms, restaurants, spa, pools, marina, laundry, admin				
Employee Housing		4	4	4
Third party condos; 63 rooms @.95 ERU		60	60	60
Existing Cascade Harbor Inn	14	14	14	14
Existing Rosario Resort complex Total – 2004	**132**			
Rosario Resort Expansion[1]				
Phase 1				
1700 & 1900 Buildings (16 keys) @.95 ERU		15	15	15
Employee Housing[1], 80 beds		8	8	8
Administration/warehouse move to utility tract		n/a	n/a	n/a
Employee cafeteria		4	4	4
Moran club & Marina village club:				
79 Condos/cottages/penthouses @ 1.0 ERU		79	79	79
21 Hotel rooms @ .95 ERU		20	20	20
8 hillside cottages @ 1.0 ERU		8	8	8
Phase 1 Cumulative Total – 2005 - 2010		***212***		
Phase 2				
Marina expansion (131 slips) @ .33 ERU per slip			44	44
21 Woodland Cottages @ 1.0 ERU			21	21
8 hillside cottages @ 1.0 ERU			8	8
Cascade Harbor Inn Expansion – 48 units			14	14
Phase 2 Cumulative Total – 2010 - 2020			***299***	
PROJECTED TOTAL ERUs		212	299	299
Additional ERU s required, per phase		80	87	
Resort reserved ERUs[2]		-44		
Additional Resort ERUs required		36	73	
Additional Cascade Harbor Inn ERUs required			14	

Sources: Rosario Utilities 2003;

Notes:
1. Resort expansion assumes 0.95 ERUs per Rosario hotel room/condo key, 0.33 ERUs per marina slip, and 1ERU per cottage.
2. The existing Resort has reserved 44 ERUs for future hotel rooms.

Existing water use by all current Resort facilities, including both Rosario and Cascade Harbor Inn is 132 ERUs as shown in Table 2.2-1. Total water treatment capacity is approximately 500 ERUs as stated in the 6-Year Water System Plan. This total also includes ERUs reserved for future residential connections that are not yet in use by Rosario Utilities water customers.

Two consecutive upgrades to the water treatment plant will be required to facilitate projected ERU growth. Table 2.2-2 demonstrates how these two successive expansions in treatment capacity will support projected water demand increases from both the Resort and other water customers.

Table 2.2-2 Projected ERU Growth as facilitated by Water Treatment Plant Expansion

Water Usage/requirements	**Existing ERUs**		**Total Projected ERUs**		
			Phase	Phase	
	active	purchased	1	2	Total
Rosario Resort and Facilities	118	44			162
Cascade Harbor Inn	14	0			14
Retail residential	178	35			213
Wholesale Residential[1]	97	14			111
Approximate[2] Total – 2004		**500**			
Phase 1--upgrade water plant to 280 gpm					
Rosario Resort and Facilities			36		36
Cascade Harbor Inn			0		0
Retail residential			78		78
Wholesale Residential			18		18
Phase 1 subtotal – 2005 - 2010			***132***		
Phase 2 -upgrade water plant to 330+ gpm					
Rosario Resort and Facilities				73	73
Cascade Harbor Inn				14	14
Retail residential[1]				57	57
Wholesale Residential[1]				14	14
Phase 2 subtotal – 2010 - 2017				***158***	
PROJECTED TOTAL ERUs					**790**

Sources: Rosario Utilities

Notes:
1. ERUs shown for retail residential and wholesale residential plats. A 4% annual increase in growth for retail residential and 2.5% for wholesale, was assumed consistent with the 6-Year Water Plan for growth until 2012.
2. There are slight differences in total ERU counts between the 6-Year Water System Plan and State Health Department's estimates.

The RMP guides Resort growth and will be implemented in at least two phases. The first phase is anticipated to be developed beginning in 2005 with expansion of employee

housing in order to provide temporary lodging for construction crews. This will be followed by restoration of the Moran Mansion and construction of the Mansion Annex with 21 hotel rooms, 3 penthouse condos, an expanded spa with new fitness center and replacement of the existing restaurant and bar. Phase I will also include construction of 40 new cottages and houses, 12 mini-mansion units, 30 condos, and replacement of both outdoor swimming pools. In total, Phase 1 would result in a demand for 80 additional ERUs more than existing water use, for a cumulative total of 212 ERUs by 2010.

Phase 2 will most likely begin around 2010. The second phase will add 34 additional cottages and add approximately 131 additional boat slips when the existing marina is replaced with a 165-slip marina. In addition, 48 more hotel rooms are expected to be added to the Cascade Harbor Inn in Phase Two. This final expansion phase would demand an additional 87 ERUs. Therefore, Phase 1 through Phase 2 of the Resort expansion would generate a cumulative total of 299 ERUs.

Water use by other water customers in the Rosario Utilities' service area is also anticipated to increase by the year 2012. According to the Water Plan, the total estimated water use by Rosario Utilities' other water customers (retail and wholesale residential) is projected to grow by 2.5% - 4% annually to 370 ERUs within this time frame (Gray & Osborne 2003). In total, Rosario Utilities will need treatment capacity for 790 ERUs to service the phased Resort expansion and its other water customers by buildout.

2.2.2 Peak Projected Water Use

The "peak hour demand" is defined as the maximum quantity of water produced in a one-hour period during a day of maximum water use. The June 1999 Department of Health Water System Design Manual methodology was used to calculate peak hour demand for Rosario Utilities. In general, a peaking factor is the ratio of peak hour to the maximum day demand. According to the Water Plan, the projected maximum day demand is based on a peaking factor of 2.25, which is the ratio of average day production to peak day production for 2000 and 2001. Projected average day, maximum day, and peak hour production through the year 2012 for Rosario Utilities are shown in Table 2.2-3.

Table 2.2-3 Rosario Utilities Projected Maximum Day and Peak Hour Production

Year	Projected Avg. Day Production (gpd)	Projected Max. Day Production[1] (gpd)	Projected Peak Hour Production[2] (gpm)
2003	123,800	278,600	424
2004	126,400	284,400	430
2006	175,700	395,300	553
2012	214,300	482,200	650

Notes: 1. Assumes a peaking factor of 2.25.
2. Calculated by the Department of Health Water System Design Manual formula for peak hour demand.
Source: Rosario Utilities 6-Year Water Plan, 2003

Water use during peak demand periods requires a quick water withdrawal from Cascade Lake, which is regulated by the existing water rights. The total domestic use instantaneous withdrawal from Cascade Lake allowed under existing water rights is 330

gallons per minute (gpm) for an equivalent of 475,200 gallons per day (gpd). The provision of adequate water capacity will be facilitate through transfer of existing water rights as discussed in section 2.4.1 below.

2.2.3 Irrigation and Fireflow

In the past, water supply for Resort irrigation and fireflow water use has come directly from Cascade Lake through a separate distribution system. However, due to the projected increase in potable water usage from the lake, it may not be feasible to maintain the minimum lake elevation levels required by water rights (347 feet) if water is used for irrigation purposes as well. Therefore, an alternate source of supply will be explored to provide sufficient irrigation water to the Resort. Currently, water used for irrigation and fireflow is not metered and therefore cannot be quantified.

2.3 Water Rights

As indicated in Table 2.3-1, approximately 283 acre-feet of water per year is set aside for domestic use. The maximum instantaneous withdrawal of this water is permitted at approximately 330 gallons per minute (gpm).

Table 2.3-1 Rosario Utilities' Existing Water Rights Summary[1] Cascade Lake

Water Right Designation	Annual Withdrawal (acre-ft/year)	Instantaneous Withdrawal (gpm)
Power Generation	1,591	1,264 (max.)
Irrigation	5	45
Domestic Use	283	330
Storage	1,879	N/A
Fire Protection[2]	As needed	

Notes: 1. Summary of existing water rights as outlined in Permit No. S1-27616 P.
2. A separate non-potable water system provides limited fire protection to the Resort area.
Source: Rosario Utilities 6-Year Water Plan 2003.

The maximum capacity of the existing water treatment plant (200 gpm based on 24 hour production averages) would not be limited by the maximum instantaneous withdrawal allowed under existing water rights (330 gpm). Therefore, instantaneous drawdown rights exceed treatment capacity by 130 gpm, which is a positive scenario for Rosario Utilities.

2.4 Existing and Projected Water Treatment Capacity

2.4.1 Production / Water Rights Analysis

Table 2.4-1 compares the projected average annual withdrawal requirement (projected average day demand) with existing Cascade Lake water rights. (For a discussion of methodology, refer to Chapter 3 of the Water Plan.) (Gray & Osborne 2003)

Table 2.4-1 Projected Average Day Production vs. Annual Withdrawal Water Rights

Year	Maximum Permitted Average Annual Withdrawal (acre-ft/year)	Projected Annual Withdrawal Requirement (acre-ft/year)	Water Rights Surplus/(Deficit) (acre-ft/year)
2002	283	136	147
2004	283	142	141
2006	283	197	86
2012	283	240	43

Source: Rosario Utilities 6-Year Water Plan 2003.

As shown above, Rosario Utilities has adequate annual withdrawal water rights to meet 2012 water use projections.

Table 2.4-2 compares the projected maximum day demand with existing Cascade Lake instantaneous water rights. (For a discussion of methodology, refer to Chapter 3 of the Water Plan.) (Gray & Osborne 2003)

Table 2.4-2 Projected Maximum Day Demand vs. Instantaneous Withdrawal Water Rights

Year	Maximum Permitted Instantaneous Withdrawal (gpm)	Projected Maximum Day Demand (gpm)	Water Rights Surplus/(Deficit) (gpm)
2002	330	190	140
2004	330	198	133
2006	330	275	55
2012	330	335	(5)

Source: Rosario Utilities 6-Year Water Plan 2003.

As shown above, Rosario Utilities will need an additional 5 gpm of instantaneous water rights by the year 2012, should growth occur as projected. Historically, the system's domestic water rights were achieved by merely transferring existing hydroelectric generating power rights to domestic water rights. The demand for additional instantaneous water rights for the Resort expansion will be treated similarly; additional water rights will be transferred from the existing hydropower rights to potable water rights. In addition, conservation measures will be applied (refer to Section 2.5.3 for information about conservation measures). These provisions are sufficient to meet demand by Phase 2 development.

2.4.2 Production Capacity Analysis

Table 2.4-3 compares the maximum day production capacity of the water treatment plant to the projected maximum day demand requirements by 2012. As shown, the maximum day production capacity of the existing treatment plant is sufficient through the year 2004, should growth occur as projected. Replacement of the raw water main with a larger diameter pipe will increase the capacity of the existing plant to 220 gpm, or 316,800 gpd, which will provide adequate capacity through 2004. In order to meet

projected peak day demand at 2012, the total capacity of the water treatment plant will need to be 335 gpm.

Table 2.4-3 Production Capacity Analysis

Year	Maximum Day Production Capacity for Existing Water Treatment Plant (gpd)[1]	Projected Maximum Day Production Requirement (gpd)[2]	Water Treatment Plant Production Capacity Surplus/(Deficit) (gpd)	Water Treatment Plant Production Capacity Surplus/(Deficit) (gpm)
2002	288,000	251,626	36,374	25
2004	288,000	284,400	3,600	3
2006	288,000	395,300	(107,300)	(75)
2012	288,000	482,200	(194,200)	(135)

Notes: 1. Actual 2002 peak day demand.
2. Based on a maximum pumping rate of 200 gpm over a 24-hour period.
Source: Rosario Utilities 6-Year Water Plan 2003.

Rosario Utilities will transfer existing hydropower rights to potable water rights to meet this demand. The transfer of these rights and application of a 2 percent-conservation standard provide sufficient production capacity for Phase 2 development. (Refer to Section 2.5.3 for information about conservation measures.)

2.4.3 Storage Analysis

Storage requirements for Rosario Utilities will be determined by applying the standards from the Department of Health Group A Water System Design Manual, June 1999, Chapter 9. The storage recommended according to this guidance document is based primarily on the sum of the following: Operational Storage, Equalizing Storage, Standby Storage, Fire Suppression Storage.

Operational Storage

Operational storage is the volume of the reservoir devoted to supplying the water system while, under normal operation conditions, the source(s) of supply are in "off" status. This volume is dependent upon the sensitivity of the reservoir water level sensors and the tank configuration necessary to prevent excessive cycling of source pump motors. Operational storage is in addition to other storage components, thus providing a factor of safety for equalizing, standby, and fire suppression components. The Utility's operational storage component for all reservoirs is based on a one-foot draw down level.

Equalizing Storage

Equalizing storage is typically used to meet diurnal demands that exceed the average day and maximum day demands. The volume of equalizing storage required depends on peak system demands, the magnitude of diurnal water system demand variations, the source production rate, and the mode of system operation. Sufficient equalizing storage must be provided in combination with available water sources and pumping facilities such that peak system demands can be satisfied.

Standby Storage

Standby storage is provided in order to meet demands in the event of a system failure such as a power outage, an interruption of supply, or break in a major transmission line. The amount of emergency storage should be based on the reliability of supply and pumping equipment, standby power sources, and the anticipated length of time the system could be out of service. Although standby storage volumes are intended to satisfy the requirements imposed by system customers for unusual situations and are addressed by WAC 246-290-420, it is recommended that a standby storage volume be not less than 200 gallons/ERU.

Fire Suppression Storage

Rosario Utilities does not provide fire protection to its customers with the potable water system. Fire suppression storage is therefore not required.

Analysis

Storage requirements for Rosario Utilities will be determined by applying the standards from the Department of Health Group A Water System Design Manual, June 1999, Chapter 9. The storage recommended according to this guidance document is based on the sum of the following storage components: operational; equalizing; standby; fire suppression; and dead storage.

As shown in Table 2.4-4, the Utility has sufficient storage capacity through 2006. Approximately 65,000 gallons of additional storage will be required by 2012.

Table 2.4-4 Rosario Utilities Storage Analysis[1]

Year	Operational Storage (gallons)	Equalizing Storage (gallons)	Standby Storage (gallons)	Total Required Storage (gallons)	Available Storage (gallons)	Storage Surplus/ (Deficit)
2002	22,770	22,350	187,973	233,093	352,000	118,907
2003	22,770	19,950	191,534	234,254	352,000	117,746
2004	22,770	11,700	195,236	229,706	352,000	122,294
2005	22,770	12,450	199,085	234,305	352,000	117,695
2006	22,770	29,700	290,993	343,463	352,000	8,537
Without Improvements						
2012	22,770	34,950	358,975	416,695	352,000	(64,695)
With Additional Storage[2] Improvements						
2012	22,770	34,950	358,975	416,695	482,000	65,305

Notes: 1. This storage analysis is for the Rosario Utilities service area only and does not include wholesale customers; the wholesale systems have their own storage facilities.
2. Assumes a 130,000 gallon-storage tank addition.
Source: Rosario Utilities 6-Year Water Plan 2003.

Rosario Utilities plans to install a new 100,000- to 130,000-gallon steel storage tank by 2012 to meet this demand for storage. In doing so, the system would contain approximately 65,000 gallons of surplus storage.

2.5 Concurrency and Level of Service

The Capital Facilities Element of the SJCCP defines the Rosario Utilities water system as a Category A capital facility. Category A services must meet the concurrency requirement of the SJCCP, which means that adequate water services and facilities must be available as development occurs. The Plan states, "For those Category A capital facilities that the County does not provide but which are necessary for development, the concurrency requirement will be implemented through the issuance (or denial) of development permits" (Section 7.1.D). Goals and policies related to planning for community water systems, as well as level of service (LOS) standards, are set forth in Section 7.3.B of the Plan.

2.5.1 Standard for Adequate LOS

The SJCCP provides LOS standards for community water systems serving Master Planned Resort activity centers. LOS Standards for Rosario Utilities as provided in the SJCCP are listed in Table 2.5-1, below.

Table 2.5-1 Water System LOS Standards

Category A Capital Facility	LOS Standards[1]					
	A	B	C	D	E	F
Rosario Utilities Water System	<80	80	85	90	95	>95

Note: 1 Operating Capacity = Percent of system capacity committed to serving existing connections and memberships.
Source: 1998 San Juan County Comprehensive Plan Section 7.3.B (6).

The goal of this LOS analysis for Rosario Utilities is to determine whether or not water system capacity will be sufficient for future phased RMP development and additional growth through completion of proposed Resort expansion (anticipated by the 6-Year Water Plan in 2012. Pursuant to the SJCC 7.3.B, the LOS Measurement for community water systems should be based on system capacity and calculated as follows:

Operating Capacity (OC) = Existing Connections (EC) / Approved Connections (AC)

OC is the operating capacity for water distribution or sewage treatment facilities. EC is existing connections and memberships (measured in equivalent residential units), and AC is approved connections and planned capacity (measured in equivalent residential units). Information from the Water Plan was drawn upon for this evaluation. Design Capacity, as expressed in ERUs, was calculated using the following formula (personal communications, Cela Fortier of Gray & Osborne, 2003):

Design Capacity = Maximum Day Production Capacity for Existing Water Treatment Plant [288,000 gpd (see Table 2.4-3)] ÷ *Peak Water Use* [(273 gpd/ERUs) x peaking factor (2.25 per DOH standards) = 614.25 gpd]

Using the above formula, the existing design capacity for the Rosario Utilities water treatment plant is 469 ERUs. Existing and future phased water production and operating capacity is summarized in Table 2.5-2.

Table 2.5-2 Water System Capacity

Rosario Utilities	System Capacity (ERUs)		Operating Capacity (%)	Available Capacity (%)	LOS
	Active	Design			
2001	383	469	82 %	18 %	**B**
2004	401	469	86 %	14%	**C**
2006	532	600	89 %	11 %	**C**
2012	711	790	90 %	10 %	**D**

According to the SJCCP, the water system is currently operating at LOS B, or 82 percent capacity. Because water treatment plant will need upgraded by the year 2005 to be able to provide sufficient capacity to service the Resort expansion, Rosario Utilities plans to expand the water treatment plant in conjunction with upgrading the 4-inch line to an 8-inch line. These improvements would be sufficient to increase the system's design capacity to handle development planned through Phase 1. Rosario Utilities was recently awarded a loan from the State of Washington to finance these two projects in mid-2004 and plans on upgrading the plant to 280 gpm in 2005. A second treatment plant expansion will be required before beginning Phase 2 of the Resort development.

Consistent with 7.3.B-7 of the SJCCP Capital Facilities Element, Rosario Utilities has formal plans that address growth, system upgrades and build-out of its clearly defined service area in the form of its 6-year water system plan. These plans consider the two phases of water plant expansion up to and including build-out proposed in the Resort Master Plan, at which time the system will be at approximately 90% capacity and no additional development within the MPR boundaries will be allowed to occur. The 6-Year Water Plan has also considered the development capacity of the portion of the Rosario Activity Center within the boundaries of Rosario Utilities service area. All existing undeveloped lots have been accounted for and average densities exceed local permitted densities so further subdivision is not possible. In addition, this service area is bordered by physical and jurisdictional limits including Moran State Park and East Sound, so expansion of the service area is not practical. For these reasons, there is no need to provide additional spare capacity at the time of build-out.

2.5.2 Summary

Rosario Utilities will transfer water rights from hydropower to a sufficient quantity of potable water rights to increase its instantaneous withdrawal water rights to service Phase 2 growth. By doing so, the utility has adequate annual withdrawal water rights to meet 2012 water usage demands.

The maximum capacity of the existing water treatment facility is 200 gpm. Upsizing the raw water line from 4-inches to 8-inches will be sufficient to handle flows and should allow the WTP to produce 220 gpm under its current configuration. If growth occurs as projected, additional treatment plant capacity would then be required by the end of 2004. The planned expansions of the water treatment plant will provide sufficient operating capacity to service the additional 285 ERUs required to meet projected Phase 2 water consumption.

The Utility has adequate storage capacity through 2006, but not through 2012. An additional 64,695 gallons of storage will be required prior to Phase 2 development. Rosario Utilities plans to install a new 100,000- to 130,000-gallon steel storage tank by 2012 to meet this demand for storage, which would result in surplus water storage of approximately 35,000 gallons.

Water treatment plant improvements are scheduled for 2005 (Phase 1 or Phase A) to increase capacity up to 280 gpm as stated in the Water Plan (see the 6-Year Water Plan's Executive Summary). Table 9-1 of the water system plan shows Phase 2 of the water plant expansion, which will need to be moved up in the schedule, depending upon residential growth and Resort development. The water plan was developed prior to phasing information or dates for the Resort master plan. A simple amendment to the 6-year Water Plan will allow plant expansion as needed.

Expansions to the water Plant will occur in advance of growth associated with Resort Master Plan implementation and projected residential development within Rosario Utilities service area. Sufficient plant capacity will comply with SJCCP LOS standards until the service area approaches build-out at which time additional spare capacity will no longer be warranted.

2.5.3 Conservation

Rosario recognizes that potable water is a finite resource. Given the projected increases in water demand and the associated regulatory and capital improvements that will be required as a result, the Utility has sufficient incentive to pursue water conservation as part of its strategy to prepare for growth. Conservation measures under consideration include the "Green Hotel" program, providing Resort products that promote conservation to guests, and following an EPA-approved water conservation program that has a solid record of reducing water use in the hospitality industry. This conservation can be achieved by consumer education and rate in incentives. Final conservation measures will be established at the time of development.

3.0 Sanitary Sewer

3.1 Existing Sewer Capacity

Rosario Utilities provides sewage treatment services to significantly fewer customers in its service area than it provides potable water. Customers include Rosario Resort,

employee dormitory housing at the Hilltop, seven single-family residences, and Moran State Park. Sewage effluent from the Resort is collected at various lift stations and pumped to a central lift station with a 10,000-gallon holding tank, located near the harbor. The rest of the sewage treatment system is located on the Utility Tract. Sewage is pumped into an aerated lagoon consisting of a 3-day detention pond, a chlorination facility, and a 30-day detention pond. The ponds have electric aerators, and there is also a 10,000-gallon chlorine contact chamber. The effluent is tested weekly with results reported monthly to the State Department of Ecology.

The current 8-acre Utility Tract has two ponds with an existing permitted capacity of 71,000 gpd. Currently, this plant operates at LOS A, using approximately 73 percent of capacity (52,000 gpd). Expansion of the treatment plant using the same footprint is already in the design process. This system is likely to remain operational for the foreseeable future, given adequate maintenance and periodic upgrade.

Table 3.1-1 Existing Sewer Capacity

Rosario Utilities Sewer Treatment	Gallons per Day	Percent Operating Capacity
Existing Design Flow Capacity	71,000	
Existing Flow	52,000	
Additional Capacity Total	**19,000**	**73 %**

Source: Rosario Utilities 2003.

3.2 Projected Sewer Capacity, Concurrency and Level of Service

3.2.1 Standard for Adequate LOS

Unlike the Rosario Utilities water system, which is classified by the Capital Facilities Element of the SJCCP as a *Community* system subject to Category-A Capital Facility LOS standards, Rosario Utilities sewer system is a *private* sewer system rather than a *community* system. As such, it should be reclassified by the Capital Facilities Element of the SJCCP and not be subject to the County's LOS Standards. Nevertheless, the Capital Facilities Element of the SJCCP currently identifies Rosario Utilities sewer system as a Category A service. As previously discussed, Category A services must meet the concurrency requirement of the SJCCP, which means that wastewater services and facilities must be matched with development. Section 7.1.D of the SJCCP states, "For those Category A capital facilities that the County does not provide, but which are necessary for development, the concurrency requirement will be implemented through the issuance (or denial) of development permits." Section 7.3.C of the Plan sets forth goals and policies related to planning for wastewater systems.

For community wastewater systems, the Comprehensive Plan requires that the LOS analysis be based on system capacity, expressed in ERUs, and calculated as follows:

Existing Capacity / Available Capacity = Operating Capacity

Because only a fraction of Rosario Utilities sewer connections are residential and existing ERU's are difficult to determine in this system, capacity is measured in peak average gallons per day (GPD). Calculating LOS in GPD rather than ERUs is an accurate and

appropriate manner to address capacity issues. LOS Standards for Rosario Utilities as provided in the SJCCP are listed in Table 3.2-1, below.

Table 3.2-1 Water System LOS Standards

Category A Capital Facility	LOS Standards[1]					
	A	B	C	D	E	F
Rosario Utilities Sewer System	<80	80	85	90	95	>95

Note: 1 Operating Capacity = Percent of system capacity committed to serving existing connections and memberships.
Source: 1998 San Juan County Comprehensive Plan Section 7.3.C (8).

Table 3.1-1 indicates that Rosario Utilities is currently operating at 73 percent capacity. Therefore, Rosario Utilities sewer system is operating at LOS A.

3.2.2 Projected Sewer Capacity and Level of Service

Rosario Utilities has projected sewer use in GPD through the year 2012, as summarized in Table 3.2-2. These projections assume that Phase 1 redevelopment of the Resort would occur by 2010, and Phase 2 would occur by 2020. The existing treatment design flow is currently 71,000 GPD. Capacity projections assume that the wastewater plant will be updated to accommodate up to an additional 70,000 GPD by 2006.

Table 3.2-2 Maximum Projected Sewer Capacity

LOS with Conservation and Maximum Improvements in Place by Phase 2			
Design Capacity	**Gallons Per Day**		
Existing Treatment Plant Design Flow	71,000		
Added Sewer Plant Capacity in Phase	70,000		
Total Range of Capacity by 2012	**141,000**		
Existing & Projected Capacity	**Cumulative Total GPD**	**Operating Capacity**	**LOS**
Existing Conditions			
Current Peak Average Monthly Flows	45,000		
Moran Park – Reserved	5,000		
Other residential	500		
Existing – 2001	**50,500**	71%	**A**
Resort Expansion Phase 1	32,000		
Water Plant Upgrade A	3,000		
Phase 1 Subtotal – 2006	**85,500**	61%	**A**
Resort Expansion Phase 2	34,500		
Water Plant Upgrade B	4,000		
Phase 2 Subtotal – 2012	**124,000**	88%	**C**

Source: Rosario Utilities 2003; EDAW.

Phase 1 development under the RMP would increase wastewater treatment capacity by 70,000 GPD or essentially double treatment plant's design capacity for sewer. With conservation measures and maximum plant capacity in place, available sewer capacity would double by Phase 2 development (2006).

As indicated in Table 3.2-2, sewer capacity under Phase 2 development would result in an operating capacity of approximately 88 percent. Therefore, sewer capacity is sufficient through Phase 2 development and would not result in impacts to existing sewer services.

3.2.3 Wastewater Reuse

Wastewater reuse is subject to regulations administered by the Department of Ecology and the Department of Health. The quality of reclaimed wastewater is defined by four classes – Classes A, B, C, and D. The major difference among the classes is the degree of disinfections that is provided during the treatment process. Class A water requires a filtering process (Gray & Osborne 2003).

Where possible, Rosario Utilities intends to use treated wastewater for beneficial uses, such as irrigation, washing, or toilet flushing to offset part of the demand on the water supply system (Ecology, 1997). The major disincentive to the reuse of wastewater is the high cost for wastewater treatment to the required standards and the cost for infrastructure (pipelines and pump stations) to deliver the water to the user.

Potential uses of reclaimed water at the Resort are landscape irrigation, and toilet flushing, and laundry and other cleaning needs. These uses require Class A water, which is the highest treatment class. However, Rosario Utilities' current treatment plant, which does not include a filtering process, produces water at the Class B or Class C standard. Irrigation with reclaimed water would, therefore, require upgrades to the treatment plant process and installation of pipelines to distribute the water to the reuse sites. Toilet flushing with reclaimed water would require new distribution pipelines and could be accomplished through the use of dual plumbing systems in new construction or retrofits to existing systems.

Rosario Utilities will undertake a long-range study to examine the potential for wastewater reuse. Areas that would need to be examined include: an assessment of the potential demand for reclaimed water in terms of quantity, type (level of treatment), and specific uses at the Resort; costs for treatment and distribution infrastructure; and an analysis of the financial feasibility.

4.0 Transportation

The following addresses transportation concurrency issues related to the proposed Resort development, for a more in-depth analysis on the expected transportation impacts associated with the proposed Resort, see the Rosario Resort Transportation Impact Analysis found in Appendix E.

4.1 Roads

San Juan County has developed a comprehensive set of Transportation Concurrency Standards that address the unique and varied forms of transportation serving the islands. Roads must operate at LOS D or better to meet San Juan County Concurrency Standards. Level of service is a measure of the ability for a road to serve the existing or projected

traffic volume and range from LOS A, which reflects very free flow to LOS F, which reflects a forced flow condition. The methods for defining level of service for two-lane roads are found in the Highway Capacity Manual, the generally accepted source for this type analysis. A traffic volume range has been defined to correspond to LOS D for roads with characteristics typical of most roads in the County (10-foot wide lanes and no shoulders).

Locations along the primary route between the Resort and the Ferry Terminal, the town of Eastsound, and other on-island recreational destinations were examined. These roads include the following:

- Orcas Road (mile post 0.75)
- Orcas Road (mile post 3.92)
- Orcas Road (mile post 6.93)
- Orcas Road (mile post 7.00)
- Olga Road (mile post 9.45)
- Olga Road (mile post 11.50)
- Rosario Road (mile post 0.10)

Since the Orcas to Olga Road (Horseshoe Highway) is constructed with wider lanes and shoulders than the 10-foot wide lanes and no shoulders typical of the island network, it is appropriate to reflect the actual level of service for this road with higher design characteristics at any location it may seem to fail with the assumed design characteristics. Measurements show that most of the Orcas to Olga Road (Horseshoe Highway) has 11-foot wide lanes and 4-foot wide shoulders. TSI calculated the level of service at Orcas Road, MP 7.00 using these revised dimensions. Likewise, the mountainous terrain, with zero chance of passing has also been accounted for in this Concurrency Analysis. The default values used for analysis by San Juan County have been retained for all other analysis locations.

4.1.1 Existing and Future Without Development Volumes

Existing traffic volumes were provided to TSI by the San Juan County Public Works Department. These volumes were expressed in terms of 'Average Annual Daily Traffic Volumes' and include the traffic generated by the existing uses at the Resort. San Juan County also provided the projected volumes without the project for the year 2010.

4.1.2 Trip Generation

Trip generation associated with the proposed Resort was developed based on Vehicle trip generation estimated using a traditional approach that is based on the land use characteristics of the proposed development with adjustments for seasonal occupancy, internally captured trips, and trips made by other modes of travel. To reflect the various types of land uses as part of the proposed Resort expansion, specific land use types found in the ITE Trip Generation Manual, 6th Edition were matched up the Resort uses to establish a generic representative trip generation for the expansion. The Trip Generation

Manual, 6th Edition is published by the Institute of Transportation Engineers (ITE) and is the most generally accepted source for this type of vehicle-trip generation data.

For example, each new land use element in the proposed Resort development was correlated with a typical land use, often a land use that is found outside of an integrated destination resort. The new luxury hotel rooms correspond directly to Land Use: 330 'Resort Hotel' and was therefore applied directly. The Resort vacation second homes were classified as 'Single Family'. All cottage and condominium units were classified as 'Condominium'. Some other planned land uses did not correspond directly to the available land use categories used by traffic engineers for forecasting new traffic volumes. Accordingly, some interpretation was required to determine a representative trip generation. For example, the staff housing was classified as 'Condominium' due to their size, however, as can be see later in this report, the expected trip generation by this land use has been significantly reduced through various factors in order to more accurately represent more of a dorm-like environment in which the employee housing is expected to provide at the Resort.

Seasonal Adjustment

To develop annual average daily traffic volumes, a seasonal adjustment was then applied. To be consistent with other Resort program elements, this seasonal adjustment was based on the seasonal occupancy rates provided by the Resort management and the economic feasibility study prepared by the team's economic consultant. Rosario management has found the hotel, and marina occupancy is 53% on an average annual basis. The Cascade Harbor Inn experiences a 45% average annual occupancy. These occupancy rates are expected to increase by about 20% with the proposed expansion and associated promotion and marketing. The employee housing is forecasted to be at 95% annual occupancy with a more uniform year-round employee base. The project development team's economic consultant estimates that the wholly owned vacation homes at Rosario Resort can be expected to have average annual occupancy rates of approximately 40% while the fractionally owned vacation homes can expect to have average annual occupancy rates of approximately 75%. These average occupancy adjustments are critical to translating the traditional trip generation values (typical activity on a fully occupied basis) to an average annual day of activity. This conversion is necessary because San Juan County Transportation Concurrency Standards for road segments are defined in terms of Average Annual Daily Traffic to reflect the seasonal fluctuations on the island.

Modal Split Adjustment

The vehicle traffic volume accounts for the Resort Operated Three Guest shuttle vans that are currently operated by Rosario as well as by Orcas Island Shuttle. These vans are used to pick-up and drop-off guests at the WSF landing in Orcas and at the Eastsound Airport. In the past, the Resort has also contracted with a private vendor that rents mopeds. To avoid an underestimate of traffic volumes, no discount in automobile trips was made for bicycle, pedestrian or moped trips, but the potential safety impacts associated with these modes of travel are addressed later in this report.

A mode split factor was then applied to account for trips made by boat or plane. The mode split factor used was 30 percent based on information provided by Rosario management. In an earlier Traffic Analysis prepared in 1995 for Rosario Resort, a 28 percent mode split factor was assumed. At that time, private transportation services available to the Resort patrons were more limited. In order to validate the 30 percent mode split, several private air and marine transportation providers were surveyed. The providers surveyed included the following:

- San Juan Airlines/West Isle Air
- Rose Air
- Kenmore Air Seaplanes
- Rugby Aviation
- Paraclete Charters
- Airporter Shuttle
- Island Express Charters
- Victoria Clipper
- Orcas Island Shuttle

The majority of these providers currently have the additional capacity to serve the new patronage or are willing to expand operations to meet the possible increase in demand, which would be created by this project. Through this survey it was concluded that the assumed 30% mode split is representative of the future travel patterns and will maintain conservative analysis for this study recognizing that the drive-on WSF system has become a frustrating mode of transportation and is less and less desirable.

Internally Shared Trips

A final adjustment was introduced to reflect trips that are made internal to the Resort due to the expansion of services that will be provided on-site. With the expansion, the Resort will function like a village that is self-sufficient once people arrive. The Resort Master Plan will improve the pedestrian circulation on-site through an improved trail system and possibly the addition of golf cart size electric people movers throughout the site. Along with the planned accommodations, many of the existing retail and lounge uses will continue to serve the convenience needs of many of the guests and staff.

There will continue to be trips generated outside the Master Planned Resort boundaries. Most of these external trips are expected to be for services not provided at the Resort (comparison-shopping and other tourist attractions), visits by non-Resort guests who are visitors from elsewhere on the island, and staff who live outside the Resort. The retail, childcare, and other services such as the pools and tennis courts are designed to be of a size and character to support the Resort operations and are not expected to draw residents from other parts of the island or compete with other commercial uses elsewhere on the island. This type of internal trip adjustment is commonly applied within self contained, mixed-use developments and was based on experience with other Resort operations and trip generation associated with recreational uses and integrated recreational developments in other locations. Please refer to Figure 4 for an illustration of the proposed improved trail network.

These factors were developed individually for each land use and applied to adjust the basic ITE trip generation rate. This adjusted trip generation rate was then applied to the incremental increase in the Resort development plan. As can be seen in Table 4.1-1, the trip generation associated with each use was added together and was found to generate 420 Average Annual Daily Vehicle Trips (AADT).

Table 4.1-1 – Average Annual Daily Trip Generation Estimate

Use	ITE Land Use Code	Units	Gross ITE Trip Rates	Average Annual Occ.	External Auto Mode Split	Percent Internal Trips	Adj. Trip Rate	Dev. Plan Net Change	Trips
Resort Hotel	330	Occ. Rooms	10.15	65%	70%	50%	2.31	-35	-80.82
Quality Restaurant	931	Seats	2.86	65%	85%	95%	0.08	40	3.16
Conference Facility	495	1000 s.f.	22.88	65%	70%	75%	2.60	-4	-10.41
Rec. Facilities	492	1000 s.f.	32.93	65%	85%	95%	0.91	9	8.19
Fractional Ownership Condo and Cottage	230	Units	5.86	75%	85%	45%	2.05	73	149.99
Whole Ownership Condo and Cottage	230	Units	5.86	40%	85%	35%	1.30	48	62.16
Second Homes	210	Units	9.57	40%	85%	25%	2.44	3	7.32
Marina	420	Berths	2.96	65%	95%	85%	0.27	131	35.92
Motel	320	Occ. Rooms	9.11	55%	100%	25%	3.76	48	180.38
Staff Housing	230	Units	5.86	95%	100%	75%	1.39	40	55.67
Subtotal									**412**
Moped and Shuttle							factor	**+2%**	**8**
TOTAL									**420**

Notes: DU – Dwelling Unit, Occ. Rooms – Occupied Rooms, s.f. – Square Feet

These are one-way trips, so on an average annual daily basis, this means approximately 210 AADT are inbound and 210 AADT are outbound.

4.1.3 Trip Assignment

Next, the trip generation associated with the proposed new development was assigned to the road network such that 100% of the new traffic was forecast to use Rosario Road and Olga Road, 90% west of the Resort, 10% east of the Resort. Thirty percent of the new traffic is forecasted to use the Eastsound bypass route (15% to the Eastsound Airport and 15% continuing along Orcas Road to the ferry landing). The remaining 60% of the trips generated are expected to traverse through Eastsound via Main St. (45% with origins and destinations in Eastsound and 15% continuing along Orcas Road to the ferry landing. This means 30% of all daily trips generated by the proposed expansion will traverse to and from the WSF landing in Orcas. This directional distribution of new traffic was based on a review of existing traffic volumes and recognition that Orcas to Olga Road is

the fastest route to and from the Ferry Terminal. The new volumes were estimated at the points along these roads that correspond to the locations where existing traffic counts were recorded.

4.1.4 Concurrency Standard

Total future AADT was determined by adding existing and forecasted new traffic volumes together. This Total Future AADT was input to the Level of Service calculation procedure and compared against the Concurrency Standard (LOS D or better) (Table 4.1-2).

Table 4.1-2 Road Concurrency Standard Evaluation

TRAFFIC COUNT LOCATION	Orcas Road – MP 0.75	Orcas Road – MP 3.92	Orcas Road – MP 6.93	Orcas Road – MP 7.00[1]	Olga Road – MP 9.45	Olga Road – MP 11.5	Rosario Road – MP 0.10[1]
CURRENT AADT[2]	1854	2020	2670	3798	2907	2707	1213
ADDITIONAL CAPACITY	126	126	126	126	377	377	420
ADEQUATE LOS CAPACITY	4399	7657	4399	6810[1]	7657	4399	3490[1]
PLANNED CAPACITY	0	0	0	0	0	0	0
AVAILABLE CAPACITY	2545	5637	1729	3012	4750	1692	2277
RESERVED CAPACITY	371	404	534	760	581	541	243
REINSTATED CAPACITY	0	0	0	0	0	0	0
REDUCED CAPACITY	0	0	0	0	0	0	0
ADJ AVAIL CAPACITY	2048	5107	1069	2126	3792	774	1614
CONCURRENCY RESULTS	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**

[1] This location analyzed using actual road geometry, resulting in a more appropriate Adequate LOS Capacity then that stated when default input values are used for analysis.
[2]As listed in County's 2005 Currency Evaluation Worksheets.

This summary shows that adjacent available capacity is expected to be available with the additional capacity associated with the implementation of the proposed Rosario Resort Master Plan. Accordingly, TSI concludes that the San Juan County Transportation Concurrency Standards for roads are met at all locations analyzed for this report.

4.2 Intersections

Within urban growth areas (UGA) such as Eastsound, intersection analyses were made to accurately reflect traffic conditions. Existing peak hour turning movement volumes analyzed in this report have been determined by factoring existing AADT volumes by a peak hour percentage (10 percent is used by San Juan County for converting daily traffic

volumes to peak hour traffic volumes) and in proportion to the turning movements previously counted by Hart Pacific Engineering at each intersection. The following intersections warranted an evaluation of intersection level of service:

- Lover's Lane at Main Street
- Prune Alley/Haven Road at Main Street
- Terrels Beach Road at Crescent Beach Road
- North Beach Road at Mount Baker Road
- North Beach Road at 'A' Street

Like two-lane roads, the Transportation Concurrency Level of Service standard is LOS D but is expressed as the delay experienced by minor movements (from the side street and left turns off the main street) and is expressed in terms of seconds of average vehicle delay. The Level of Service is determined using methods unique to unsignalized intersections that are defined by the Highway Capacity Manual (2000) The forecasted traffic volumes described above (with the Rosario expansion) were used to evaluate the Level of Service. These intersections are forecasted to operate as shown in Table 4.2-1.

Table 4.2-1 Intersection Concurrency Standard Evaluation

Intersection	Existing		2010 Future Without		2010 Future With Project		Concurrency (Pass/Fail)
	LOS	Delay	LOS	Delay	LOS	Delay	
Lover's Ln/ Main St	B	11.7	B	14.6	B	14.9	Pass
Prune Alley Rd/ Main St	C	16.5	C	24.6	C	24.6	Pass
Terrels Bch Rd/ Crescent Bch Rd	B	11.7	B	13.0	B	13.5	Pass
N Beach Rd/ Mt Baker Rd	B	11.5	B	13.2	B	13.3	Pass
N Beach Rd/ 'A' St	B	12.4	C	18.3	C	19.2	Pass

As can be seen in the above table, all intersections are expected to continue to pass San Juan County concurrency standards with the Rosario Resort expansion.

4.3 Ferry System

The Washington State Ferries (WSF) provide primary automobile and passenger connections with Orcas Island. San Juan County currently does not have a concurrency standard; however, two aspects of this transportation service were examined: 1) Additional demand on the ferry runs serving Orcas Island and 2) impact on the Orcas Ferry Landing parking facilities.

To evaluate the impact of this increase, the new automobile demand was compared against the capacity of the vessels serving the principal linkage between Anacortes and Orcas Island. To be conservative, it was assumed that all ferry trips would be assigned to

this segment of the ferry service and would not be reduced by inter-island service. This comparison is summarized in Table 4.3-1 below.

Table 4.3-1 Summer Ferry System Demand and Capacity Comparison

Condition	Time Period	Total Vessel Capacity	Increase in Demand	Proportion of Capacity
Weekend				
Leaving Anacortes	Friday noon - Saturday 1PM[1]	395	22	6%
Leaving Orcas	Sunday noon - Monday 1AM	395	22	6%
Weekday				
Leaving Orcas	Weekday 6AM-10:30AM	158	18	11%
Leaving Anacortes	Weekday 3PM - 9PM	237	18	8%

1.This time window and the associated vessel capacity may yield a conservative analysis because WSF indicates that an increasing number of people start their weekend trips on Thursday evening.

This shows the added automobile traffic that uses the ferry could potentially increase demand during the summer peak periods by between six and eleven percent. Although it is impractical to reliably estimate the impact of this automobile traffic increase in terms of an increase in the number of overloads, it is expected that the impact on ferry services would be limited. Validating the limitation of impact, the Comprehensive Plan estimates that the ferries will operate at Level of Service C or better during the summer. This Level of Service is not expected to change as a result of the small forecasted increase in automobile demand. During winter months, the Resort guest demand is less and therefore the impact on the ferry system is expected to be even less than during the summer. Accordingly, the total impact on the ferry system is expected to be minimal.

In terms of ferry system parking at Orcas, there are 40 parking stalls to serve walk-on passengers at the terminal and an additional 16 parking non-ferry system parking stalls near the terminal. This development is not expected to noticeably generate the commuter type trips that would create a demand for parking at the Ferry Terminal as with permanent island-residents who commute to off-island employment. However, the Resort currently and will continue to mitigate this deficiency by offering three shuttles operated by the Resort to guests and employees to shuttle them back and forth between the Resort and the Orcas terminal.

San Juan County staff acknowledges the problem this lack of available parking creates, particularly during peak summer parking demands, when it is estimated that the population of Orcas Island can double in size. The County has established an on-street parking program to promote parking turnover and discourage long-term parking in stalls designated as such. This impact is higher on weekends. Again, the added demand for ferry use associated with Rosario Resort will not significantly add to the parking demand at the Ferry Terminal. Long-term parking is more likely to be used by residents of the island commuting on a day-to-day basis to off-island places of employment.

4.4 Air Travel

There are several aspects of air travel that could be impacted by the demand generated by this proposed development. These include impact on the Eastsound Airport and an increase in activity by seaplanes at Rosario. A brief summary of the characteristics of these two primary air providers is summarized in Table 4.4-1.

Table 4.4-1 Airport Inventory

Air Facility	Type	Runway Length/ Condition	Based Aircraft	Average Airport Operations	Airport Operation Capacity
Eastsound Airport	Land Based/ Public	2900 ft/good	93	160/day	335/day
Rosario Airport	Sea Based/ Private	--	--	8/day	--

Note: The reported operations represent the average daily operations and fluctuate considerably by season.

As noted above, the combination of private air and private marine modes of travel are estimated to account for approximately 70 one-way trips per average day. Assuming one-fourth of these trips are made by air, the increase in trips due to Resort expansion would represent a five to ten percent increase in activity. A large number of these trips are expected to be served by existing scheduled carriers on existing schedules, which may increase planeload factors but would only marginally increase the number of plane operations, reducing the impact further.

The Eastsound airstrip has an average of 160 operations per day. It is expected that the number of private plane operations would increase by up to two operations per day during the summer days. This increase will represent a minimal impact on this airfield.

Demand for scheduled seaplane service is not expected to noticeably increase due to the planned Resort expansion although load factors on some flights on current commercial services like Kenmore Air may increase slightly. Private floatplane activity is expected to increase with one or two more landings each day on peak summer days. These added flights must operate within existing floatplane operation parameters and are not expected to create a noticeable impact on boat activity in the bay.

4.5 Marine Travel

This Resort is unique in its ability to be accessed by private watercraft. With expansion, Rosario Resort will add 131 slips to the existing 34 for a total of 165 slips. Supply for mooring demand by private boats is expected to increase by more than three times that of the existing slip area. However, the overall demand increase of Cascade Bay is expected to be much less. It is merely expected to shift closer to shore. A very important benefit of the marina expansion is that it will also facilitate improved access by commercial seaplanes and water shuttles in addition to private yachts. This will further improve access by alternative transportation modes.

4.6 County Docks

Rosario Resort does not fall within the boundaries of a County Dock service area nor is it expected to add trips within a service area. Therefore, County Dock LOS standards are not applicable to this project.

For a more in-depth analysis on the expected transportation impacts associated with the proposed Resort, see the Rosario Resort Transportation Impact Analysis found in Appendix E.

APPENDIX D

THE TRAFFIC IMPACT ANALYSIS

(PREPARED IN 2004 FOR VOLUME II OF THE ROSARIO RESORT MASTER PLAN)

TSI
Transportation Solutions, Inc.

Rosario Resort

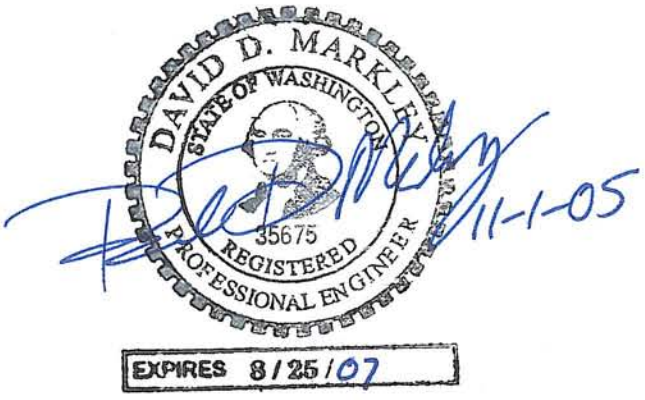
Traffic Impact Analysis

October 2005

(This report replaces the previous September 2004 Submittal.)

Prepared for:

Olympus Real Estate
And
San Juan County



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LOS WORKSHEETS

INTRODUCTION

This report summarizes the analysis of the transportation impacts associated with the Rosario Master Planned Resort expansion proposed by Rosario Resort and Spa and the Cascade Harbor Inn, hereafter referred to as "the Resort". While this analysis was originally intended to supplement the SEPA Checklist and application for the Resort Master Plan, the primary purpose of the report is to identify any traffic-related impacts generated by this proposed expansion, and outline policies, programs, and/or physical improvements proposed to minimize or eliminate the effects of these impacts.

This report updates several aspects of the traffic impact analysis prepared in September of 2004 to include an update of existing volumes, an update of concurrency analysis, and a more developed discussion of possible mitigation. This update has been conducted in order to include this document in the appendices of the Rosario Resort Master Plan Final Environmental Impact Statement as a technical reference.

Scope of this Analysis

The scope of this analysis includes an evaluation of the incremental impacts associated with the Resort expansion on the primary road system serving the site. In addition, it addresses the impacts associated with other non-automobile modes of travel commonly used by resort guests including ferry, private marine, air and non-motorized transportation options. The findings of this analysis will be used to evaluate compliance with San Juan County Transportation Concurrency Guidelines.

The approach to this analysis is to first describe the planned changes to the development. Based on these planned changes, the incremental increase in travel demand for each mode of travel is forecasted. Then, for each mode for travel, an evaluation of the impacts is made by describing the existing system, illustrating the incremental impact of the proposed Resort expansion, and then making an assessment of the incremental impact of the expansion of each travel mode and the ability for Transportation Concurrency Standards to be met.

Project Description

The Resort is an established destination resort located on Orcas Island, the largest island in the San Juan Archipelago. More specifically, the Resort is located on the eastern half of Orcas Island, approximately 5.5 miles east of the town of Eastsound when traveling along Olga Road, just before the entrance to Moran State Park. The location of the site is shown on the vicinity map in Figure 1.

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Figure 1
Vicinity Map

Rosario Resort
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The owners propose to reduce the number of hotel-type rooms and in turn add both wholly owned and fractionally owned vacation homes consisting of vacation cottages, vacation condominiums and second homes. They also plan to add employee housing and additional on-site amenities to provide a more all inclusive-type atmosphere. A tabular comparison of the land uses in the existing and proposed Resort is presented in Table 1 below.

Table 1 – Resort Land Use

Land Use	Existing	Proposed	Net Change
Hotel	128rooms	81 rooms	-47 rooms
Restaurant	120 seats	160 seats	40 seats
Cocktail Lounge	65 person	65 person	0 person
Conference Center	5,000 sqft	1,000 sqft	-4,000 sqft
Support Services	28,000 sqft	28,000 sqft	0 sqft
Recreational Facilities	3,000 sqft	12,000 sqft	9,000 sqft
Condominium and Cottage (Fractional Ownership)	0 units	73 units	73 units
Condominium and Cottage (Whole Ownership)	3 units	51 units	48 units
Second Homes	0 units	3 units	3 units
Marina	34 slips	165 slips	131 slips
Cascade Harbor Inn	50 rooms	98 rooms	48 rooms
Employee Housing	20 units	60 units	40 units
Boat Launch	1 ramp	1 ramp	0 ramps

Note: Recreational facilities encompasses the proposed expanded Spa and the Fitness Center
All sizes associated with each land use are best estimates and are subject to
Slightly change along the various stages of development.
Sqft – square feet

With the proposed development plan in place, accommodations at Rosario Resort are proposed to consist of 306 total units. This is an approximate 129-unit increase over the existing units available at Rosario Resort today, not including employee housing. Currently there are 20 two-bed housing units on the Hilltop. In addition, although designated as guest rooms for analysis, the 1700 Building currently houses up to 30 employees. As with the other land uses at the Resort, employee housing occupancy fluctuates according to the time of year. The Hilltop will be expanded to 60 units along with the addition of an employee cafeteria/recreation facility. This will be available to all employees, which will reduce trips to Eastsound by employees.

Along with the additions listed above, the proposed development plan also calls for the addition of many amenities such as replacement of both outdoor swimming pools, an expanded up-scale spa and fitness center, new restaurants and lounges, a small general store and other retail. Please refer to the Rosario Resort Master Plan for more details involving the planned services and amenities for this development. A site plan can be seen in Figure 2.

The owners aim to add value to the Resort experience by packaging lodging and transportation to enhance accessibility of their resort to their guests. With the Washington State Ferry (WSF) system already often at capacity during the peak season, they expect to provide or work with private operators to facilitate the use of transportation options that are convenient alternatives to traditional car ferry access.

This will be accomplished through an increase, parallel to resort expansion, in private vessel ridership (air and marine) to gain access and egress to the Resort. The Rosario Resort and Spa will cater to a higher income clientele, which would find the cost of choosing one of these alternative modes of transportation much less than the cost, measured in time and inconvenience, of waiting for access to the WSF system during the peak season.

Presently, guests travel to and from Orcas Island by various modes including by automobile across the island from the Washington State Ferry terminal at Orcas Landing, by water via private boat or seaplane, and by air via planes that use the Eastsound Airport. The Rosario Resort management experience is that thirty percent (30%) of the travel directly to and from the Resort is via water or air. Vehicular travel other than that to and from Orcas Landing and the Eastsound Airport is related to off-site guest recreation trips to and from other locations on Orcas Island and employee or service trips involved in supporting the Resort. All existing transportation services will continue and may include possible expansion, if feasible, with the proposed development plan in place.

The owners will include self-mitigating transportation improvement to the Resort. In addition to the water shuttle services that currently serve the Resort, the owners propose to have a Resort operated water shuttle. This would be a large power yacht offering scheduled sailings to and from Anacortes, Bellingham and possibly the Seattle area. The water shuttle program will be included as part of resort packages to provide a comprehensive guest experience and give guests more time to enjoy the resort by avoiding the delays, typical of the Washington State Ferry System.

The proposed Resort also calls for new pedestrian circulation facilities including improved walking paths and trails, drawing pedestrians away from Rosario Road. The Resort also proposes to offer a fleet of rental vehicles, an electric golf cart-like circulator, and bikes for resort club members. To further reduce transportation impacts associated with the Resort, the owners propose expanded employee housing and dinning facilities at the Hilltop, reducing necessary off-site trips. The expanded marina with facilities for additional private boats, passenger vessels and seaplane docks is also an integral part of the efforts of the owners to self-mitigate transportation related impacts.

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Figure 2
Proposed Site Plan

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TRAFFIC FORECASTS

The forecasted volumes for each of the primary modes of travel to and from Rosario Resort were developed as a basis of evaluating the transportation system impacts and Concurrency Standards compliance. The majority of travel to and from the site is expected to be made by automobile. Since a large portion of these traffic volumes will affect the Washington State Ferry Service, an evaluation of ferry system patronage is estimated. Likewise, a cumulative estimate of the trips that will be made using private boat and plane travel is also summarized. Both phases of this project are expected to be complete and operational by 2010. The year 2010 will be used for all future forecasts in this report.

Automobile Traffic Volumes

For the purpose of this analysis, locations along the primary route between the Resort and the Ferry Terminal, the town of Eastsound, and other on-island recreational destinations were examined. These roads include the following:

- Orcas Road (mile post 0.75)
- Orcas Road (mile post 3.92)
- Orcas Road (mile post 6.93)
- Orcas Road (mile post 7.00)
- Olga Road (mile post 9.45)
- Olga Road (mile post 11.50)
- Rosario Road (mile post 0.10)

In addition, several key intersections were evaluated and these include the following:

- Lover's Lane at Main Street
- Prune Alley/Haven Road at Main Street
- Terrels Beach Road at Crescent Beach Road
- North Beach Road at Mount Baker Road
- North Beach Road at 'A' Street

To effectively asses traffic impacts an estimate of future traffic volumes without the project must be established. These intersection locations were evaluated because they more accurately and realistically reflect the operation of the road network in Eastsound. This will be the base condition against which traffic impacts are measured since these volumes will exist in 2010 even without the proposed Resort expansion. Next, traffic volumes associated with the proposed expansion will be estimated and superimposed (added to) on the future traffic volumes without the project. This total will represent the future traffic volume with the planned Resort expansion. This volume will be used to assess the incremental impact

when compared against the future traffic without the planned expansion and against adopted Transportation Concurrency Standards to evaluate Concurrency compliance.

Future Volumes Without the Project - The forecasted traffic volumes for the expansion were developed to evaluate project compliance with adopted Transportation Concurrency Standards. San Juan County Transportation Concurrency Standards for the road network are expressed in terms of Average Annual Daily Traffic (AADT). This is a standard unit measure used by transportation professionals to reflect the typical daily (24 hour) traffic volume on a road segment, which accounts for individual daily and seasonal fluctuations. The existing AADT volumes at the various locations on Orcas Island, which are evaluated in this study, are shown in Figure 3A.

Within the Eastsound UGA, intersection analyses were made to accurately reflect traffic conditions. Existing peak hour turning movement volumes analyzed in this report have been determined by factoring existing AADT volumes by a peak hour percentage (10 percent is used by San Juan County for converting daily traffic volumes to peak hour traffic volumes) and in proportion to the turning movements counted by Hart Pacific Engineering. These turning movement counts are shown in Figure 3B.

New Resort Expansion Volumes – Vehicle trip generation was estimated using a traditional approach that is based on the land use characteristics of the proposed development with adjustments for internally captured trips and trips made by other modes of travel. To reflect the various types of land uses proposed as part of the Resort expansion, specific land use types found in the ITE Trip Generation Manual were matched up the resort uses to establish a generic representative trip generation for the expansion. As noted above, adjustments were then introduced to reflect the seasonal characteristics (this peak daily use to an average daily level of activity; internal travel within the development (internally captured or shared trips); and the use of alternate modes of travel unique to this Resort. A summary of the derivation of the vehicle trip generation for the proposed development is summarized in Table 1.

First, each new land use element in the proposed Resort development was correlated with a typical land use, often a land use that is found outside of an integrated destination resort. The new luxury hotel rooms correspond directly to Land Use: 330 ‘Resort Hotel' and was therefore applied directly. The resort vacation second homes were classified as 'Single Family'. All cottage and condominium units were classified as ‘Condominium’. Some other planned land uses did not correspond directly to the available land use categories used by traffic engineers for forecasting new traffic volumes. Accordingly, some interpretation was required to determine a representative trip generation. For example, the staff housing was classified as 'Condominium' due to their size, however, as can be see later in this report, the expected trip generation by this land use has been significantly reduced through various factors in order to more accurately represent more of a dorm-like environment in which the employee housing is expected to provide at the Resort.

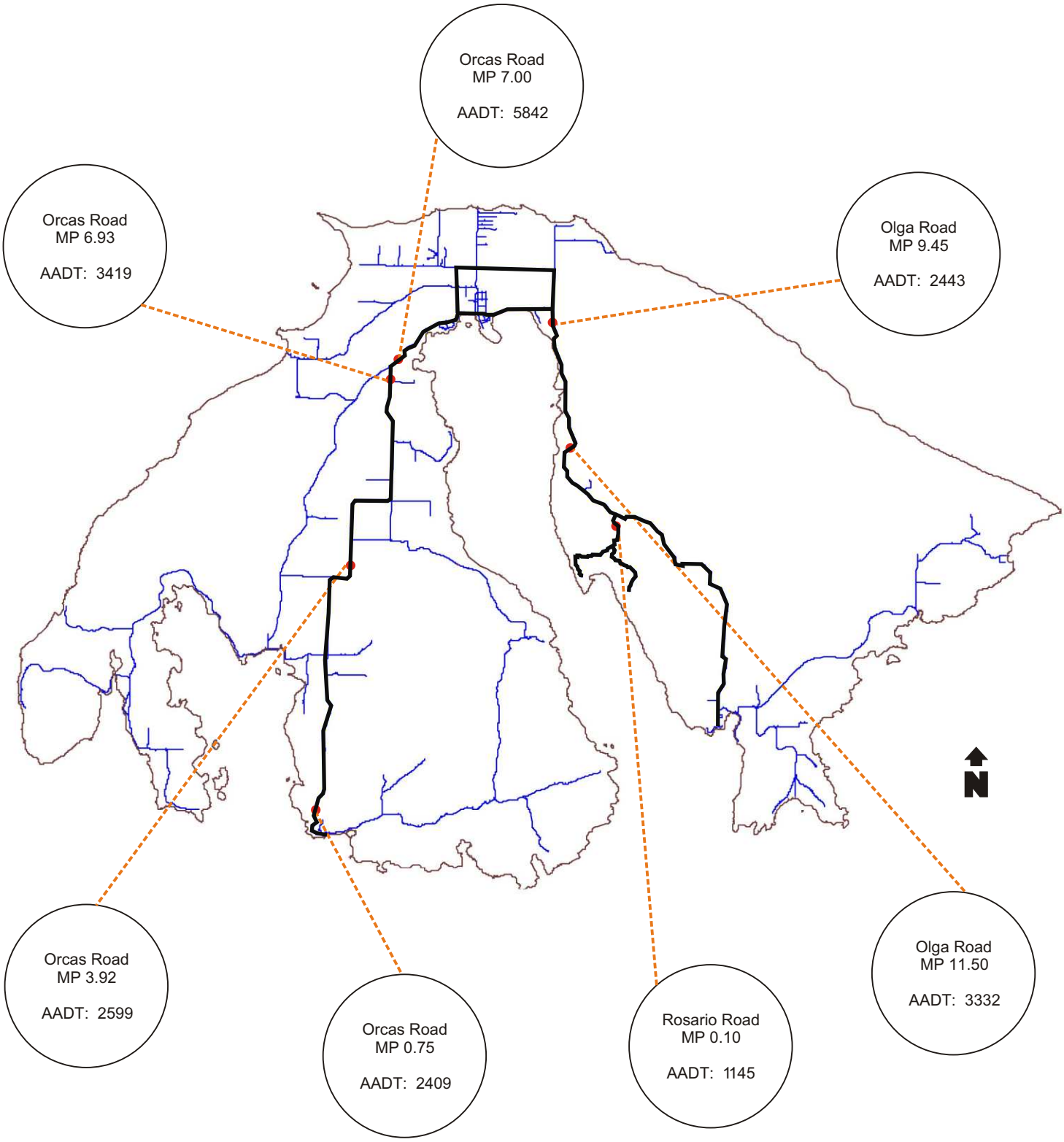

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Figure 3A
2010 Future without Project
Average Annual Daily Trips

Rosario Resort
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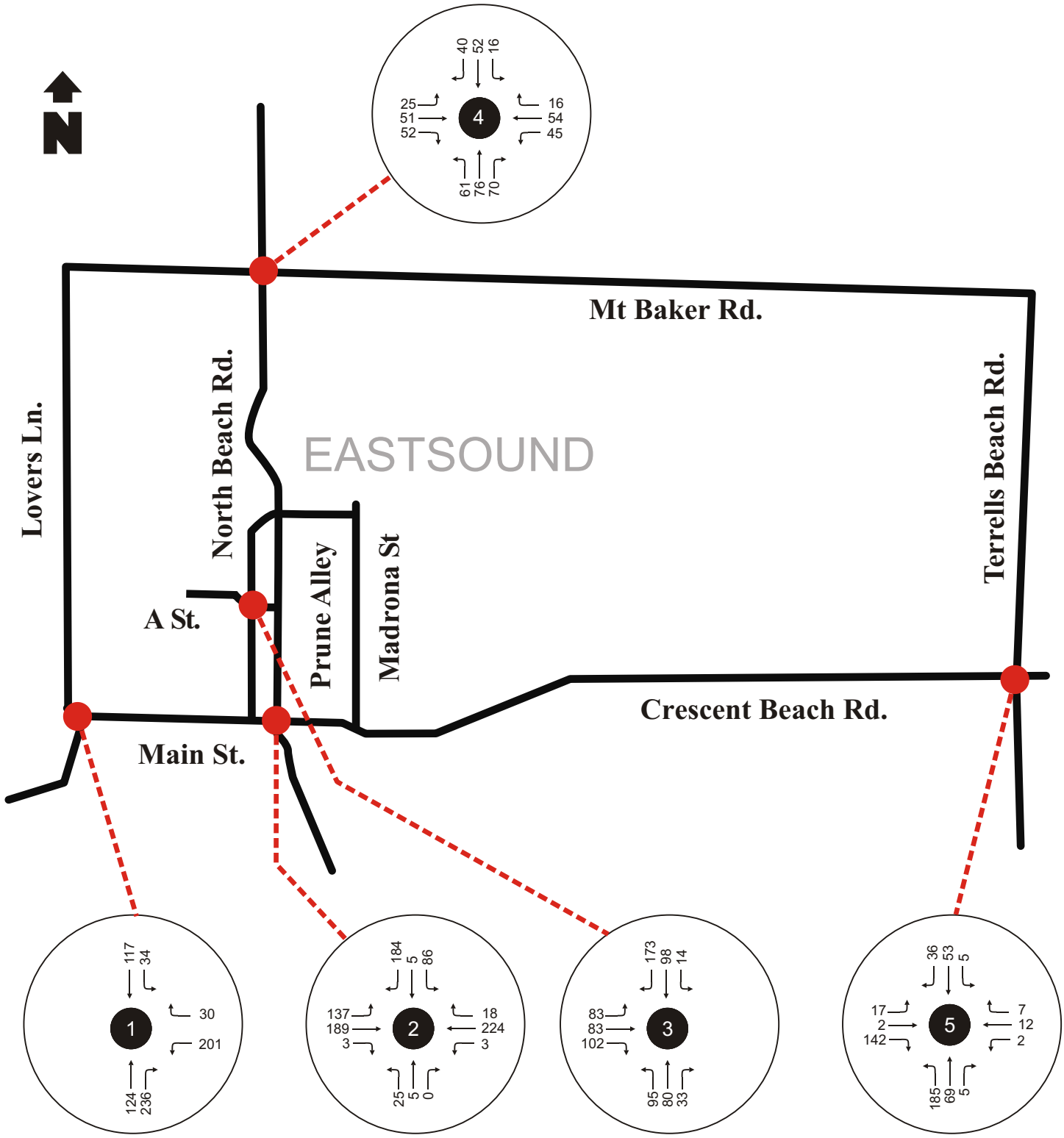

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Figure 3B
2010 Future without Project
Peak Hour Turning Movements

Rosario Resort
Olympus Real Estate

The typical daily trip generation rates corresponding to these land uses are described in Trip Generation, An Informational Report, 6th Edition published by the Institute of Transportation Engineers (ITE). This is the most generally accepted source for this type of vehicle-trip generation data. The selection of the base trip generation rate was made using this data source to ensure that traffic volumes would not be underestimated.

Seasonal Adjustment - To develop annual average daily traffic volumes, a seasonal adjustment was then applied. To be consistent with other Resort program elements, this seasonal adjustment was based on the seasonal occupancy rates provided by the resort management and the economic feasibility study prepared by the team's economic consultant. Rosario management has found the hotel, and marina occupancy is 53% on an average annual basis. The Cascade Harbor Inn experiences a 45% average annual occupancy. These occupancy rates are expected to increase by about 20% with the proposed expansion and associated promotion and marketing. The employee housing is forecasted to be at 95% annual occupancy with a more uniform year-round employee base. The project development team's economic consultant estimates that the wholly-owned vacation homes at Rosario Resort can be expected to have average annual occupancy rates of approximately 40% while the fractionally-owned vacation homes can expect to have average annual occupancy rates of approximately 75%. These average occupancy adjustments are critical to translating the traditional trip generation values (typical activity on a fully occupied basis) to an average annual day of activity. This conversion is necessary because San Juan County Transportation Concurrency Standards for road segments are defined in terms of Average Annual Daily Traffic to reflect the seasonal fluctuations on the island.

Modal Split Adjustment - The vehicle traffic volume accounts for the three guest shuttle vans that are currently operated by the Resort as well as the Orcas Island Shuttle. These vans are used to pick-up and drop-off guests at the WSF landing in Orcas and at the Eastsound Airport. The Resort also offers a fleet of approximately 10 rental cars to encourage walk-on ridership of the WSF as well as trips to the Resort via air and sea. The Resort also contracts with a private vendor that rents mopeds out of Orcas. To avoid an underestimate of traffic volumes, no discount in off-site automobile trips was made for bicycle, pedestrian or moped trips, but the potential safety impacts associated with these modes of travel is addressed later in this report.

A mode split factor was then applied to account for trips made by boat or plane. The mode split factor used was 30 percent based on information provided by Resort management. In an earlier Traffic Analysis prepared in 1995 for Rosario Resort, a 28 percent mode split factor was assumed. At that time, private transportation services available to the Resort patrons were more limited. In order to validate the 30 percent mode split, several private air and marine transportation providers were surveyed. The providers surveyed included the following:

- San Juan Airlines/West Isle Air
- Rose Air
- Kenmore Air Seaplanes
- Rugby Aviation
- Paraclete Charters
- Airporter Shuttle
- Island Express Charters
- Victoria Clipper
- Orcas Island Shuttle

The majority of these providers currently has the additional capacity to serve the new patronage or is willing to expand operations to meet the possible increase in demand, which would be created by this project. Through this survey it was concluded that the assumed 30% mode split is representative of the future travel patterns and will maintain conservative analysis for this study recognizing that the drive-on WSF system has become a frustrating mode of transportation and less and less desirable.

Internally Shared Trips - A final adjustment was introduced to reflect trips that are made internal to the resort due to the expansion of services that will be provided on-site. With the expansion, the Resort is intended to continue to function like a village, which is self-sufficient once people arrive. They plan to improve the pedestrian circulation on-site through an improved trail system and possibly the addition of golf cart size electronic people movers throughout the site. Along with the planned accommodations, many of the existing retail and lounge uses will continue to serve many of the guests and staff convenience needs.

There will continue to be trips generated outside the Resort property. Most of these external trips are expected to be needs for services not provided at the Resort (comparison-shopping and other tourist attractions), visits by non-resort guests who are visitors from elsewhere on the island, and staff who live outside the Resort. The retail, childcare, and other services such as the pools and tennis courts are designed to be of a size and character to support the Resort operations and are not expected to draw residents from other parts of the island or compete with other commercial uses elsewhere on the Island. This type of internal trip adjustment is commonly applied within self contained, mixed-use developments and was based on experience with other resort operations and trip generation associated with recreational uses and integrated recreational developments in other locations. Please refer to Figure 4 for an illustration of the proposed improved trail network.

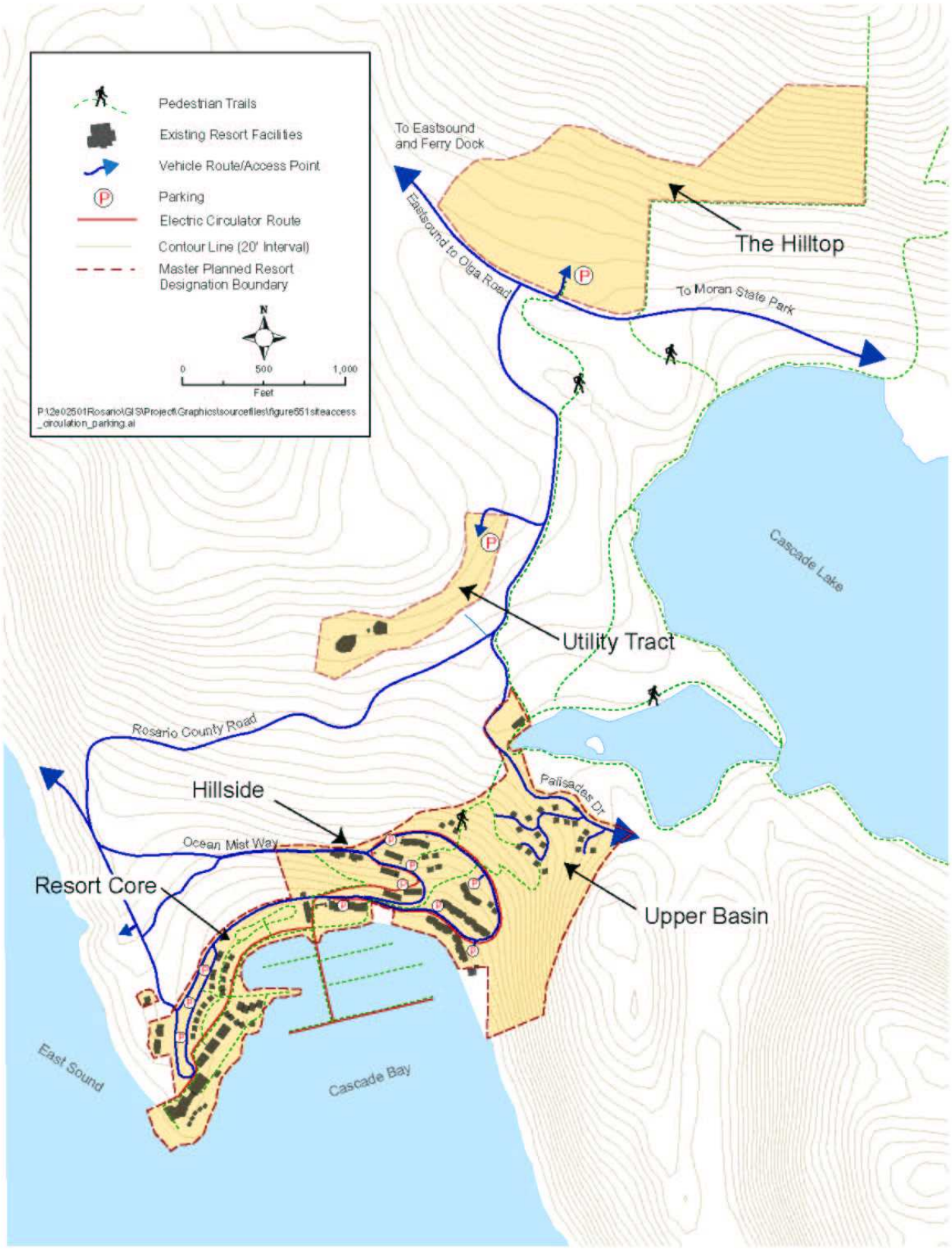

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Figure 4
Improved Pedestrian Trail Network

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These factors were developed individually for each land use and applied to adjust the basic ITE trip generation rate. This adjusted trip generation rate was then applied to the incremental increase in the Resort development plan. As can be seen in Table 2, the trip generation associated with each use was added together and was found to generate 420 Average Annual Daily Vehicle Trips (AADT). This includes an additional 2% of the forecasted traffic volume demand that was added to account for mopeds and shuttle vehicle trips to ensure that traffic forecasts would not be underestimated.

Table 2 – Average Annual Trip Generation Estimate

Use	ITE Land Use Code	Units	Gross ITE Trip Rates	Average Annual Occ.	External Auto Mode Split	Percent Internal Trips	Adj. Trip Rate	Dev. Plan Net Change	Trips
Resort Hotel	330	Occ. Rooms	10.15	65%	70%	50%	2.31	-35	-80.82
Quality Restaurant	931	Seats	2.86	65%	85%	95%	0.08	40	3.16
Conference Facility	495	1000 s.f.	22.88	65%	70%	75%	2.60	-4	-10.41
Rec. Facilities	492	1000 s.f.	32.93	65%	85%	95%	0.91	9	8.19
Fractional Ownership Condo and Cottage	230	Units	5.86	75%	85%	45%	2.05	73	149.99
Whole Ownership Condo and Cottage	230	Units	5.86	40%	85%	35%	1.30	48	62.16
Second Homes	210	Units	9.57	40%	85%	25%	2.44	3	7.32
Marina	420	Berths	2.96	65%	95%	85%	0.27	131	35.92
Motel	320	Occ. Rooms	9.11	55%	100%	25%	3.76	48	180.38
Staff Housing	230	Units	5.86	95%	100%	75%	1.39	40	55.67
Subtotal									**412**
Moped and Shuttle							factor	**+2%**	**8**
TOTAL									**420**

Notes: DU – Dwelling Unit, Occ. Rooms – Occupied Rooms, s.f. – Square Feet

These are one-way trips so on an average annual daily basis this means 210 AADT are inbound and 210 AADT are outbound. The project generated AADT volumes are shown in Figure 4A. The project generated turning movements at the specified intersections of Eastsound are shown in Figure 4B.

Ferry Traffic Trip Generation- An estimate of the volumes using the WSF service between Orcas Island and Anacortes was made since the majority of guests will use the ferry to access Orcas Island. This forecast assumed that the increase in off-island resort support services (food delivery, laundry, etc.) would not generate an appreciable number of new ferry trips since they already serve the existing Resort. For example, the number of food

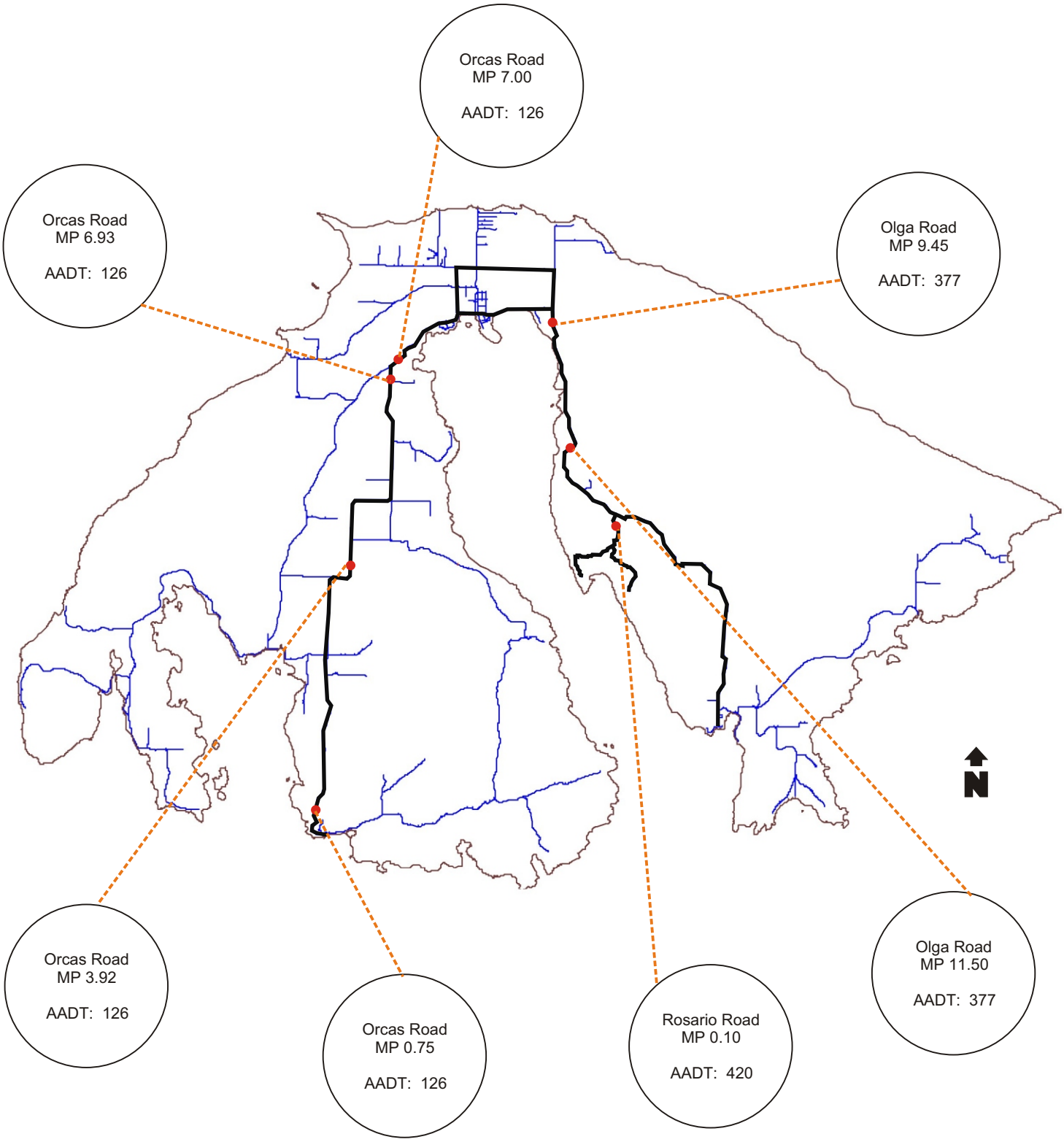

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Figure 5A
Project Generated AADT

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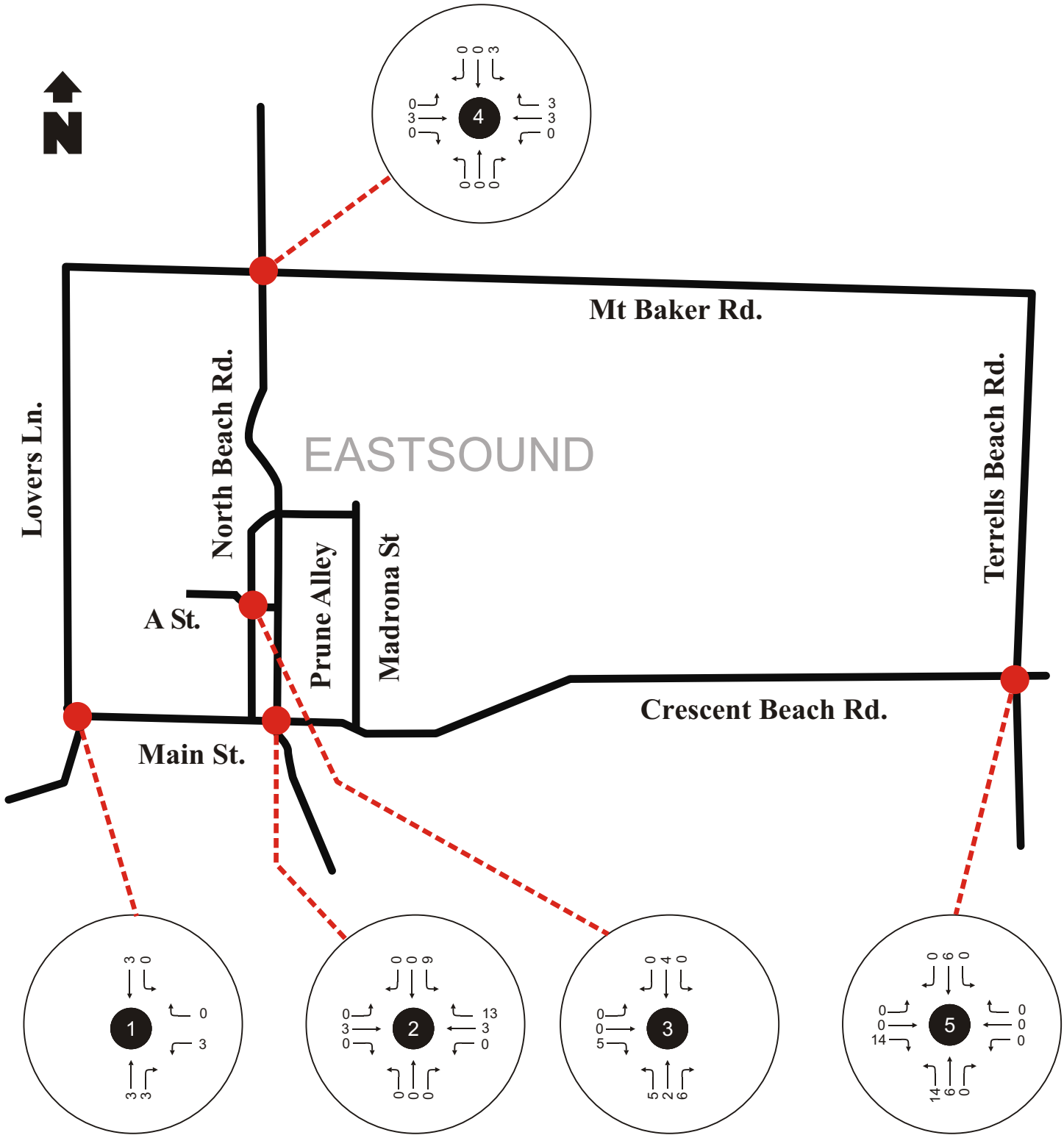

Figure 5B
Project Generated AADT
Peak Hour Turning Movements

Rosario Resort
Olympus Real Estate

service providers will not likely increase but they may deliver more during each trip to accommodate the increased demand due to expansion. Resort guests, including the Cascade Harbor Inn guests, would generate the majority of the ferry ridership increase created by Resort expansion. Accounting for trips to and from the Eastsound Airport, Moran State Park, the town of Eastsound and all other recreational trips, it is assumed that 50% of all daily vehicle trips generated by Rosario Resort are to and from the Orcas ferry landing. Accounting for shuttle service and private drop-off and pick-up and other origins and destinations at Orcas it is assumed that 80% of these automobile trips actually board or disembark from the ferry. A summary of the forecast is presented in Table 3 below. The most current data available from Washington State Ferries was year 2002 data.

Table 3 - Impact on Automobile Trips by Ferry (Anacortes/Orcas)

Drive-On AADT	2002 AADT	AADT Capacity	Capacity Used W/O	Capacity Used With	Increase of Demand on Capacity
88	791	2340	34%	38%	4%

The estimate of new automobile trips made during the summer peak period was based on the Average Annual Daily Traffic Volume forecast developed above. The ferry volume forecast was then refined to reflect peak summer conditions. The approach to this ferry traffic forecast was developed in consultation with staff at WSDOT using the following assumptions:

- Peak period demand was 15% to 30% of the Average Annual Daily Traffic generated by the Resort expansion.
- Walk-ons represented 11% of the ferry volume.
- Off-island trips represented 20% to 70% of the total peak period trips
- Summer traffic was increased from 5% to 95% of average traffic conditions
- Adjustments to reflect the different weekday versus weekend patterns of residents and hotel guests respectively,

This forecast shows the weekday volumes would be expected to increase by about 18 vehicles in both the morning and afternoon peak periods. On weekends, the peak demands would be expected to increase by 22 vehicles. These traffic demands are compared against the ferry capacities later in this report to understand their relative impact.

Other Travel Modes - An estimate of the volumes generated by other travel modes (air and marine other than the Washington State Ferry) were determined to be the number of non-automobile trips in combination with a review of the facilities and operations associated with the air and private marine activity. This represents the net difference between the total trips forecasted and the number of trips made by automobile. Using the mode split that exists at the Resort today, 30% non-privately owned vehicle trips, a comparison not

accounting for the discrepancy in capacity between privately owned motor vehicles and marine and air vehicles would suggests that as many as 176 one-way vehicle trips per day to and from the island would be made by these non-auto modes of travel. Marine transportation considered for mode split includes any marine vessels expected to access the Resort directly through the Resort Marina, including privately owned boats and yachts, the proposed Resort operated shuttle, and other third party shuttles that transport guests to and from the Marina. Assuming passenger vehicles have an average occupancy of two guests and that private aircraft and marine vessels have an average occupancy of five passengers, the actual number of trips by private marine vessel and air landing operations is expected to be 70 per day on an average annual basis, most of these being marine based. An analysis of the impacts of these modes of travel is presented later in this report.

Again, the expected mode split is reinforced with the Resort's proposal to add a water shuttle; the proposed marina expansion is also expected to greatly increase the capacity for direct marine access.

On-Site Parking – Until the proposed development reaches the design phase, the total square footage of the Resort can not be accurately determined, therefore the proposed number of parking stalls to be located on-site was determined based on San Juan County's parking requirements of each individual land use proposed for the Resort. Then, in order to ensure that the parking supply is not excessive, as with trip generation, it is necessary to introduce reduction factors to account for the unique nature of the Resort.

When multiple land uses exist on one site, a phenomenon known as "shared parking" takes place, reducing the amount of necessary parking supply for each land use. This phenomenon has been documented by The Urban Land Institute in their publication, "Shared Parking".

> *While developers and public officials recognize the existence of shared parking, typical zoning codes do not provide for it. Instead, most zoning codes are expressed in terms of peak parking indices or ratios for major types of* individual *land uses. While the peak ratios reflect the differences in parking demand generated by separate land uses and under certain conditions, they do not reflect the fact that total or combined peak parking demand can be significantly less than the sum of the individual demand values. That is, parking requirements may be overstated if they require space for the peak parking accumulations of each individual land use.* (Shared Parking, The Urban Land Institute, Page 3)

Contributing factors to parking demand reduction include the following:

- The internal trips throughout the Resort between the various land uses are expected to take place through non-motorized means;
- The remote location greatly reduces the amount of non-guest patronage of the amenities offered at the Resort;
- The amenities on-site will be for guest use only, further reducing non-guest patronage;
- The various modes of transportation offered for trips to and from origins/destinations off-site, such as marine vessel, float plane and shuttle service, reduces the need for individuals to bring their privately owned vehicles to the Resort;
- Seasonal employees (the majority of resort staff) reside on this site and do not generally own cars, but rely on Resort transportation which reduces external trips and parking demand; and
- Employee parking supply is provided away from the resort center in the Hilltop and Utility Tract.

Based on this analysis, the net parking stalls that will accommodate the parking demand experienced by the proposed Resort were established. The proposed parking supply has been summarized in the following table. It is interesting to note that the reduction in parking is approximately the same as the mode split and internal trip reduction used to estimate the traffic forecasts even though each analysis was performed independently. Accordingly, there is a high level of confidence in this parking forecast. Refer to the site plan to see how the parking stalls would be allocated throughout the site.

This amount of available parking is expected to be sufficient but not excessive and will be strategically placed throughout the site according to where demand is expected rather than in one centralized location. In the event that peak season spikes require additional parking, the Resort has already designated open space in the Hilltop and Utility Tract area of the Resort for spillover parking (up to 100 additional stalls, as well as 110 trailer stalls for special events only). If this were to occur, shuttle service would be provided between the spillover parking area and the Resort's core. By providing designated spill-over parking areas, the possibility of spill-over parking taking place along Rosario Road will be greatly reduced. Please refer to Figure 6 for an illustration of the proposed hilltop parking area.

Consistent with the San Juan County Comprehensive Plan, all parking facilities at Rosario will meet the following criteria:

- Safe ingress and egress
- Screened or well set back from roads
- Adequate design for ease of use
- Provide for the physically impaired
- Provide for alternative forms of transportation

Parking within 200 feet of the shoreline must also comply with SJCC 18.50.090, which stipulates shoreline-specific parking requirements.

Table 4 – Summary of Suggested Parking Supply

Location	Description	Land Use	Minimum Stalls[1]	Quantity	Total Stalls	Adj. Factor[2]	Net
Mansion Area	Luxury hotel rooms	Hotel/Motel	1/room	21 rooms	21	0.5	10.5
Mansion Area	Cottages	SF Residential	2/ Unit	9 Units	18	0.5	9.0
Mansion Area	Mini-Mansion	MF Residential (3+ Units)	2/ Unit	12 Units	24	0.8	19.2
Mansion Area	Restaurants	Drinking and Eating Est.	1/3 seats	186 Seats	62	0.3	15.5
Mansion Area	Spa & Retail	Retail Sales & Svcs.	1/300 s.f.	6,250 s.f.	20.8	0.1	2.1
Mansion Area	Moran Museum	Museum	1/800 s.f.	5000 s.f.	16.6	0.1	1.7
SUBTOTAL					**168.4**		**58**
Marina Village	Jetty Condos	MF Residential (3+ Units)	2/ Unit	12 Units	24	0.7	16.8
Marina Village	Village cottages	SF Residential	2/ Unit	19 cottages	38	0.7	26.6
Marina Village	Cliffhouse Homes	SF Residential	2/ Unit	3 Units	6	1	6
SUBTOTAL					**68**		**49.4**
Central Cascade Bay	Marina	Administrative Discretion	1/2 slips	165 Slips	82.5	0.5	41.3
Central Cascade Bay	Waterfront Condos	MF Residential (3+ Units)	2/ Unit	18 Units	36	0.7	25.2
Cabana and Retail	Redeveloped Boatel	Resorts	1/300 s.f.	7500 s.f.	25	0.1	2.5
SUBTOTAL					**143.5**		**69**
Hillside Condos	Existing guest rooms	Hotel/Motel	1/room	67 rooms	67	0.8	53.6
Hillside Condos	Renovated Condos	MF Residential (3+ Units)	2/ Unit	8* Units	24	0.8	19.2
Hillside Cottages	New Cottages	SF Residential	2/ Unit	16 Units	32	0.8	25.6
Bowman's Bluff	New Cottages	SF Residential	2/ Unit	3 Units	6	0.8	4.8
SUBTOTAL					**129**		**103.2**
Upper Basin	Woodland Cottages	SF Residential	2/Unit	21 Units	42	1	42
SUBTOTAL					**42**		**42**
East Cascade Bay	Cascade Harbor Inn Rooms	Hotel/Motel	1/room	45 rooms	45	1	45
East Cascade Bay	Cascade Harbor Inn Proposed	Hotel/Motel	1/room	48 rooms	48	1	48
SUBTOTAL					**93**		**93**
Hilltop	Employee Housing	MF Residential (3+ Units)	2/D.U.	60 rooms	120	0.2	24
All areas	Max. employees per shift	1/employee	1/employee	120 employees	120	0.5	60
TOTAL				356	**789.9**		**499**

Notes: 1 San Juan County parking requirements for stand-alone uses.

2 Adjustment factor accounts for shared demand on-site, remote location, and high alternative modes of transportation.

This table encompasses all land uses, not just the net change in land use.

D.U. – Dwelling Unit; s.f. – square feet; SF – single-family; Max. – Maximum

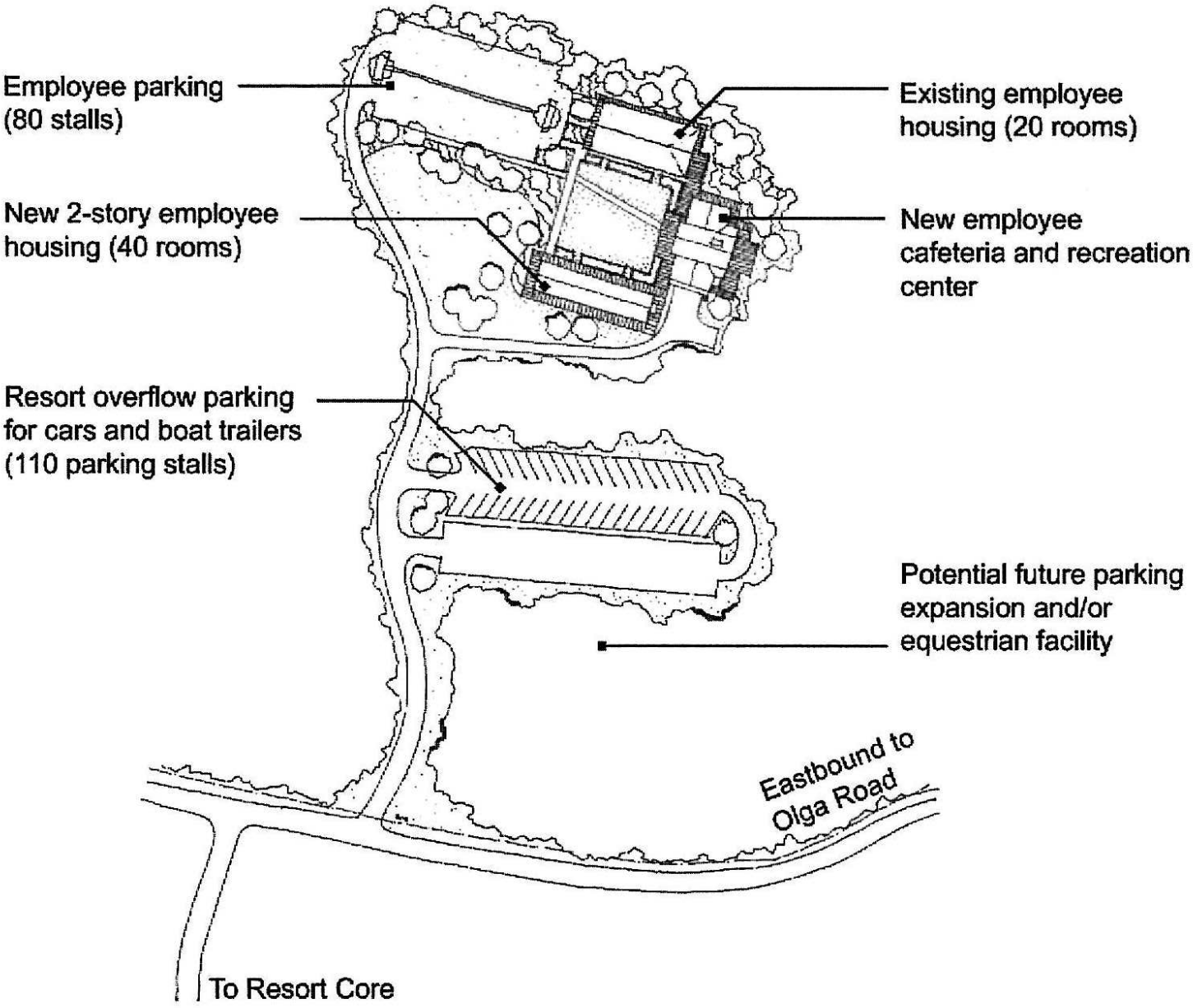

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Figure 6
Proposed Hilltop Area Parking

Rosario Resort
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TRANSPORTATION CONCURRENCY AND IMPACTS

Roads - San Juan County has developed a comprehensive set of Transportation policies that address the unique and varied forms of transportation serving the islands. Roads must operate at LOS D or better to meet San Juan County Concurrency Standards. Level of service is a measure of the ability for a road to serve the existing or projected traffic volume and range from LOS A, which reflects very free flow to LOS F, which reflects a forced flow condition. The methods for defining level of service for two-lane roads are found in the Highway Capacity Manual, the generally accepted source for this type analysis. A traffic volume range has been defined to correspond to LOS D for roads with characteristics typical of most roads in the County (10-foot wide lanes and no shoulders). The maximum service volume for Level of Service D for a road with these characteristics is 4,399 vehicles per hour in both directions. Inside the Eastsound UGA, the level of service was calculated at the intersections because in a more developed network of streets, the capacity of the road network is controlled by the intersections.

Since the Orcas to Olga Road (Horseshoe Highway) is constructed with slightly wider lanes and shoulders, it is appropriate to reflect the actual level of service for this road with higher design characteristics at any location it may seem to fail with the assumed design characteristics. Our measurements show that most of the Orcas to Olga Road (Horseshoe Highway) has 11-foot wide lanes and 4-foot wide shoulders. TSI calculated the level of service at Orcas Road, MP 7.00 using these revised dimensions but retained all other traffic inputs as the same as those used in the development of County Concurrency standards. The terrain at all points on both roads is defined as rolling, which affects the ability for cars to pass slower moving vehicles.

Existing traffic volumes were provided to TSI by the San Juan County Public Works Department. These volumes were expressed in terms of 'Average Annual Daily Traffic Volumes' and include the traffic generated by the existing uses at Rosario Resort. San Juan County also provided the projected volumes without the project for the year 2010.

The trip generation associated with the proposed new development (Table 1) was assigned to the road network such that 100% of the new traffic was forecast to use Rosario Road and Olga Road, 90% west of Rosario, 10% east of Rosario. Thirty percent of the new traffic is forecasted to use the Eastsound bypass route (15% to the Eastsound Airport and 15% continuing along Orcas Road to the ferry landing). The remaining 60% of the trips generated are expected to traverse through Eastsound via Main St. (45% with origins and destinations in Eastsound and 15% continuing along Orcas Road to the ferry landing. This means 30% of all daily trips generated by the proposed expansion will traverse to and from the WSF landing in Orcas. This directional distribution of new traffic was based on a review of existing traffic volumes and recognition that Orcas to Olga Road is the fastest route to

and from the Ferry Terminal. The new volumes were estimated at the points along these roads that correspond to the locations where existing traffic counts were recorded.

Future with project conditions were evaluated for Concurrency compliance using San Juan County methodology by adding current AADT, reserved capacity, and the additional capacity associated with this proposed Master Plan.

Adjusted available capacity would still exist with the implementation of the proposed Master Plan. Table 5 summarizes the road concurrency evaluation for this development.

Table 5 - Road Concurrency Standard Evaluation

TRAFFIC COUNT LOCATION	Orcas Road – MP 0.75	Orcas Road – MP 3.92	Orcas Road – MP 6.93	Orcas Road – MP 7.00[1]	Olga Road – MP 9.45	Olga Road – MP 11.5	Rosario Road – MP 0.10[1]
CURRENT AADT[2]	1854	2020	2670	3798	2907	2707	1213
ADDITIONAL CAPACITY	126	126	126	126	377	377	420
ADEQUATE LOS CAPACITY	4399	7657	4399	6810[1]	7657	4399	3490[1]
PLANNED CAPACITY	0	0	0	0	0	0	0
AVAILABLE CAPACITY	2545	5637	1729	3012	4750	1692	2277
RESERVED CAPACITY	371	404	534	760	581	541	243
REINSTATED CAPACITY	0	0	0	0	0	0	0
REDUCED CAPACITY	0	0	0	0	0	0	0
ADJ AVAIL CAPACITY	2048	5107	1069	2126	3792	774	1614
CONCURRENCY RESULTS	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**

[1] This location analyzed using actual road geometry, resulting in a more appropriate Adequate LOS Capacity then that stated when default input values are used for analysis.
[2]As listed in County's 2005 Currency Evaluation Worksheets.

Total future AADT was also determined by adding existing, forecasted new traffic volumes without the project and forecasted project related volumes together. The added project-related traffic volumes will represent a 2% to 35% increase in traffic volume with the higher proportional impact occurring closer to the Resort. This increase is still well under the road capacity. Nonetheless, there will be added congestion during summer months and particularly during summer weekends. The net change attributable to the proposed Resort expansion is still expected to go unnoticed except on Rosario Road where all new volumes will converge. For a more in-depth analysis, this Total Future AADT was analyzed for actual level of service. Table 6 summarizes the road level of service evaluation.

Table 6 - Road Level of Service Evaluation

Road Name	M.P.	Existing AADT[1]	Existing LOS	2010 AADT Without Project	2010 LOS Without Project	New Rosario Resort AADT	Total 2010 Future AADT	Level of Service With Project
ORCAS ROAD	0.75	2285	C	2409	C	126	2532	C
ORCAS ROAD	3.92	1893	C	2599	C	126	2722	C
ORCAS ROAD	6.93	3011	C	3419	D	126	3542	D
ORCAS ROAD[2]	7.00	4260	C[2]	5842	D[2]	126	5965	D[2]
OLGA ROAD	9.45	3355	D	3672	C	377	4042	C
OLGA ROAD	11.50	3012	C	3332	D	377	3702	D
ROSARIO RD[2,]	0.10	1249[3]	B	1447	B	420	1859	C

[1] AADT includes traffic volumes generated from the existing Rosario Resort as supplied by San Juan County.

[2] This location was analyzed using actual road geometry.

[3] Based on volume trend of counts obtained from San Juan County for the years 2002, 2003, 2004.

This comparison shows that the level of service with the Total Future AADT is LOS D or better at all traffic count locations. Accordingly, TSI concludes that the San Juan County Transportation Concurrency and LOS Standards for roads are met at all locations analyzed for this report. Although noted in the table, in addition to the one section on Orcas Road, the actual road geometry (e.g. lane width, shoulder width, and percent site distance) for Rosario Road was also used to evaluate the level of service.

Intersections - In addition to road sections leading to the resort, the level of service at arterial intersections within activity areas like Eastsound needs to be evaluated. The following intersections warranted an evaluation of intersection level of service:

- Lover's Lane at Main Street
- Prune Alley/Haven Road at Main Street
- Terrels Beach Road at Crescent Beach Road
- North Beach Road at Mount Baker Road
- North Beach Road at 'A' Street

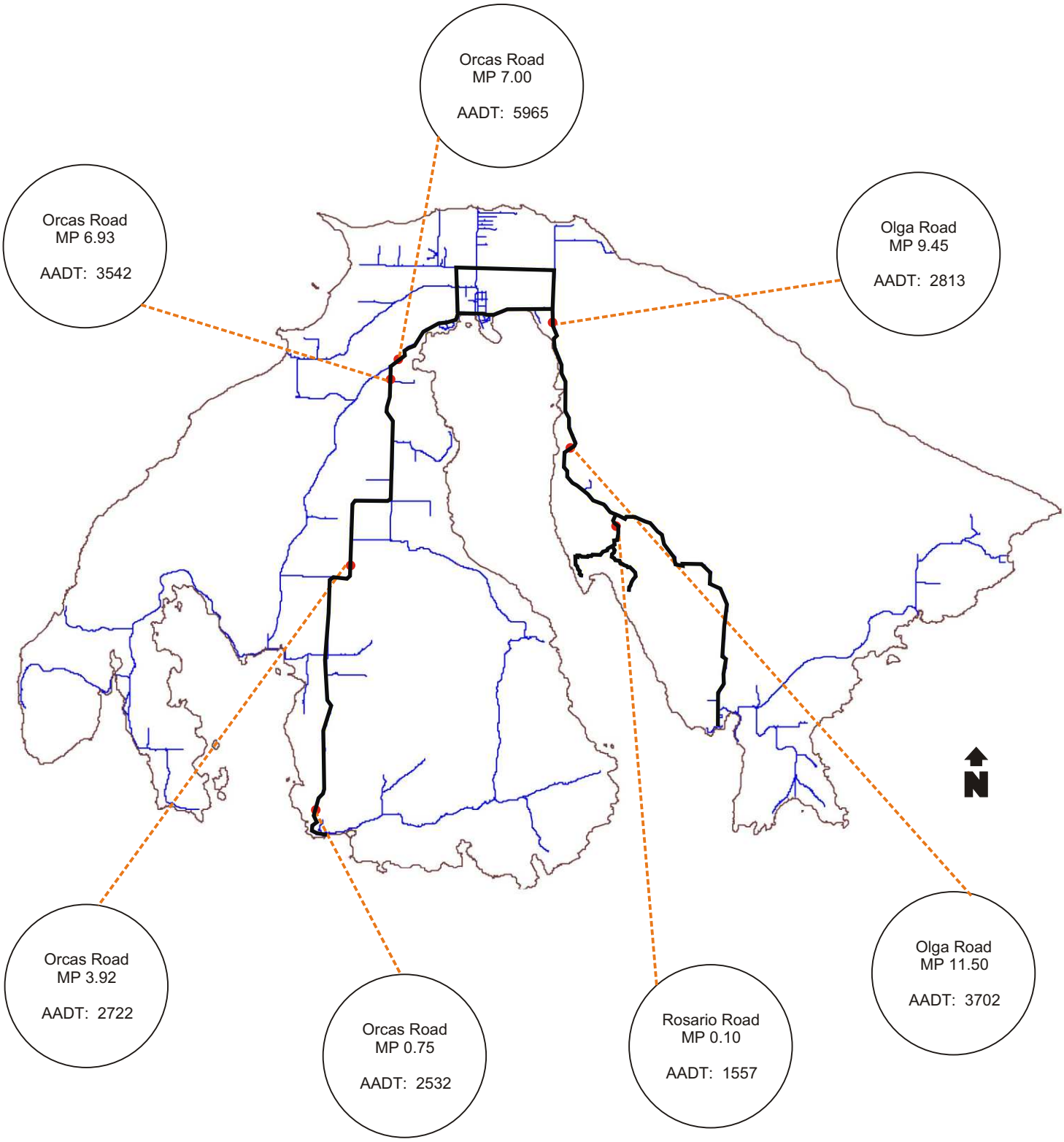
Like two-lane roads, the Transportation Concurrency level of service standard is LOS D or better but is expressed as the delay experienced by minor movements (from the side street and left turns off the main street) and is expressed in terms of seconds of average vehicle delay. The level of service is determined using methods unique to unsignalized intersections that are defined by the Highway Capacity Manual (2000) The forecasted traffic volumes described above (with the Resort expansion) were used to evaluate intersection level of service. These intersections are forecasted to operate as shown in the following table.

Table 7 - Intersection Concurrency Standard Evaluation

Intersection	Existing		2010 Future Without		2010 Future With Project		Concurrency (Pass/Fail)
	LOS	Delay	LOS	Delay	LOS	Delay	
Lover's Ln/ Main St	B	11.7	B	14.6	B	14.9	Pass
Prune Alley Rd/ Main St	C	16.5	C	24.6	C	24.6	Pass
Terrels Bch Rd/ Crescent Bch Rd	B	11.7	B	13.0	B	13.5	Pass
N Beach Rd/ Mt Baker Rd	B	11.5	B	13.2	B	13.3	Pass
N Beach Rd/ 'A' St	B	12.4	C	18.3	C	19.2	Pass

[1]Represents approach of intersection which experiences highest delay; Delay - average seconds per vehicle. 2003 data was found to be more conservative than 2005 data and has therefore been maintained as the base of intersection analysis.

Table 7 above shows that the added traffic generated by the proposed expansion will not change the level of service experienced in 2010 without the proposed expansion. The average vehicle delay will change by less than one second due to the proposed expansion. Because all intersections operate at LOS C or better which is above level of service D, all intersections satisfy San Juan County concurrency standards with the Resort expansion.



TSI Transportation Solutions, Inc.

Figure 7A
Total 2010 AADT,
Including Project Trips

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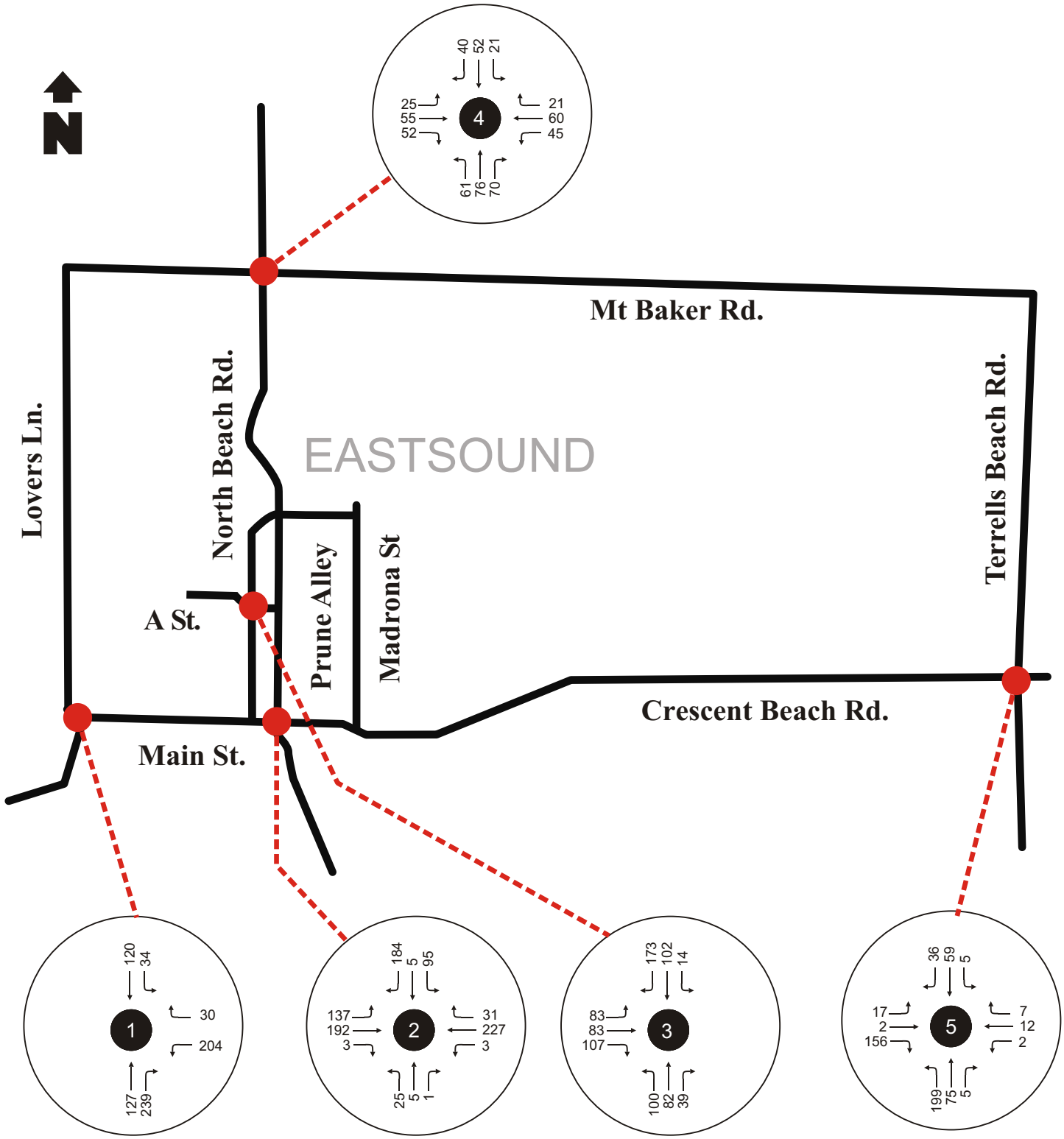

TSI Transportation Solutions, Inc.

Figure 7B
Total 2010 AADT
Peak Hour Turning Movements,
Including Project Trips

Rosario Resort
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Safety Issues – Based on discussions with San Juan County Staff, the location that was identified as a potential safety problem was Rosario Road which connects the Resort to the surrounding road network. This road consists of a combination steep slopes and sharp angle horizontal curves. Although this road has a posted speed limit of 25mph, 85th percentile speed studies have shown speeds of 35 mph as reported by San Juan County staff. Because of the geometrical layout of this road, there are also many hidden driveways along its approximate 1.3 miles of length.

From the year 2001 thru the year 2003, there were a total of 2 accidents reported along Rosario Road. Of these accidents, both were single vehicle accidents, one of which involved a moped. This translates to an accident rate of roughly 1.24 accidents per million vehicle miles traveled within the last 3 years. Anything over 1 accident per million vehicle miles traveled may indicate a safety issue. However, both accidents were single vehicle accidents, one of which involved a driver of a moped who lost control of the vehicle and the other accident involved an uninsured motorist. These factors may indicate these accidents were more related to the driver than to Rosario Road.

A more detailed summary of recorded accidents since 1990 is presented in table 8, which shows the majority, (over 60%), of accidents involve vehicles driving off the road due to speed, driver error, vehicles have lost control, driven off the road, or collided with a fixed object.

About 20% of these accidents appear to be precipitated by animals crossing or standing in the road. Approximately 20% of the accidents involve mopeds. Despite the limitation of sight distance at driveways, none of the accidents recorded involve right angle accidents associated with vehicles turning in or out of private driveways or intersecting streets.

Table 8 – Rosario Road 15 Year Collision Summary

DATE	MILEPOST	INJURY	VEHICLES	BRIEF SUMMARY	FACTOR
5/24/90	0.53	No	1 CAR, 1 DEER	Deer jumped out and vehicle hit it.	Animal
6/21/90	0.49	Minor	1 CAR	Vehicle left roadway and struck a tree.	Driver Error
7/29/90	1.05	Minor	1 MOTORCYCLE	Motorcycle struck deer and left roadway	Animal
8/10/90	0.83	Major	1 MOPED	Moped lost control in sharp turn, falling off onto roadway.	Moped
8/28/90	0.10	Possible	1 MOTORCYCLE	Motorcycle hit gravel on curve and lost control.	Motorcycle
8/18/91	0.27	Minor	1 CAR	Vehicle traveling too fast for conditions, failed to negotiate curve.	Alcohol
3/20/92	0.25	Minor	1 CAR	Vehicle failed to negotiate curve left roadway and struck tree. -speed/alcohol	Alcohol

DATE	MILEPOST	INJURY	VEHICLES	BRIEF SUMMARY	FACTOR
3/21/92	0.94	No	1 CAR	Vehicle failed to negotiate curve. Driver distracted.	Driver Error
5/5/92	1.02	No	1 CAR	Vehicle failed to negotiate corner due to speed.	Driver Error
6/14/92	0.10	No	1 CAR	Vehicle failed to negotiate corner. - speed	Driver Error
11/13/92	1.01	Major	1 CAR	Vehicle left roadway, hitting fence.	Alcohol
1/14/93	0.96	No	1 CAR	Vehicle traveling too fast for conditions failed to negotiate curve.	Driver Error
3/18/93	0.01	No	2 CARS	Vehicle backed into another vehicle.	Driver Error
7/29/93	0.60	No	1 CAR	Parked vehicle's emergency brake failed letting car roll across both lanes of traffic, into tree.	Defective Equip
7/31/93	0.53	Minor	1 CAR	Inexperienced driver, speeding, overcorrected and left roadway.	Driver Error
10/9/94	0.95	No	2 CARS	Vehicle moved over center line to avoid deer, collided with oncoming car.	Animal
8/17/95	0.67	Minor	1 CAR	Vehicle lost control.	Driver Error
8/21/95	0.24	Minor	1 MOTORCYCLE	Motorcycle struck deer dumping bike.	Animal
8/5/96	1.00	Possible	1 CAR	No information or description of accident except had trouble with contact lens.	Medical
9/19/96	0.01	Minor	1 CAR	Swerved to miss deer left roadway.	Animal
12/11/96	0.67	No	2 CARS	Vehicle backed up into oncoming traffic.	Driver Error
2/20/97	0.67	No	1 CAR	Vehicle lost control - speed and damaged brakes	Defective Equip
8/12/98	0.49	Minor	1 MOPED	Moped lost control	Moped
2/6/99	1.02	No	1 CAR	Vehicle left roadway	Animal
1/21/00	1.03	No	1 CAR	Vehicle left roadway	Driver Error
1/28/00	0.10	M	1 CAR	Vehicle left roadway - speed (frost just beginning to form)	Driver Error
6/12/00	0.98	No	1 CAR	Vehicle's brakes failed going into a curve	Defective Equip
9/23/01	0.81	No	1 CAR	Vehicle left roadway to avoid deer	Animal
8/7/03	0.66	Minor	1 MOPED	Lost control of moped	Moped
9/23/05	--	No	1 CAR	Vehicle left roadway	Unknown

To address this safety concern, several possible options were considered. One option included the possibility of extending Rosario Road down through the east side of the resort and back up the hill connecting with Palisades Drive, to create a loop road that would

reduce volumes on the lower portion of the road nearest the Resort. It was found that this would not be feasible due to the steep and irregular topography of any possible alignment. Any attempts to extend Rosario Road back up the hill to Olga Road, even if theoretically possible, would definitely not adhere to the goals of the Scenic Road Manual because it would require cutting a swath 75 to 100 feet wide to construct a road to current San Juan County Road Standards, removing an extensive number of trees and vegetation, resulting in scarred back slopes.

Rough measurements from the Resort Core to Olga Road along the existing roadway alignment and the alternative route along a new connection to Palisades Drive found that the new connection would reduce the required travel distance by no more than approximately 70 yards. Therefore, this alternative route would potentially reduce the travel time from Olga Road to the Resort Core by only ten seconds or fewer and would most likely go unnoticed by the driver.

Ferry System - The Washington State Ferries (WSF) provide primary automobile and passenger connections with Orcas Island. San Juan County has not developed a jointly adopted method for Concurrency Standards for ferry service and ferry parking but through SEPA evaluate the impact of new development. Other resort analyses have assessed this impact by illustrating the proportional increase in activity levels. Two aspects of this transportation service were examined: 1) Additional demand on the ferry runs serving Orcas Island and 2) impact on the Orcas Ferry Landing parking facilities.

An estimate of the typical ferry traffic demand is summarized on Table 3 above. To evaluate the impact of this increase, a comparison of the new automobile demand was compared against the capacity of the vessels serving the principal linkage between Anacortes and Orcas Island. To be conservative, it was assumed that all ferry trips would be assigned to this segment of the ferry service and would not be reduced by inter-island service. This comparison is summarized in Table 9 below.

Table 9 - Summer Ferry System Demand and Capacity Comparison

Condition	Time Period	Total Vessel Capacity (Vehicles)	Increase in Demand (Vehicles)	Proportion of Capacity
Weekend				
Leaving Anacortes	Friday noon - Saturday 1PM[1]	395	22	6%
Leaving Orcas	Sunday noon - Monday 1AM	395	22	6%
Weekday				
Leaving Orcas	Weekday 6AM-10:30AM	158	18	11%
Leaving Anacortes	Weekday 3PM - 9PM	237	18	8%

1. This time window and the associated vessel capacity may yield a conservative analysis because WSF indicates that an increasing number of people start their weekend trips on Thursday evening.

This shows the added automobile traffic that uses the ferry could potentially increase demand during the summer peak periods by between six and eleven percent. Although it is impractical to reliably estimate the impact of this automobile traffic increase in terms of an increase in the number of overloads, it is expected that the impact on ferry services would be limited. During winter months, the Resort guest demand is typically minimal and therefore the impact on the ferry system is expected to be even less than during the summer. Accordingly, the total impact on the ferry system is expected to be minimal. Regular guests and owners are expected to work with the Resort management to take advantage of alternate modes of transportation, the increased moorage facilities, and options to travel during off-peak periods to avoid existing vessel congestion and delay.

In terms of ferry system parking at Orcas, there are 40 parking stalls to serve walk-on passengers at the terminal and an additional 16 parking non-ferry system parking stalls near the terminal. This development is not expected to noticeably generate the commuter type trips that would create a demand for parking at the Ferry Terminal as with permanent island-residents who commute to off-island employment. However, the Resort currently and will continue to help mitigate this deficiency by offering three shuttles operated by the Resort to guests and residents to shuttle them back and forth between the resort and the Orcas terminal.

San Juan County staff acknowledges the problem the lack of available parking creates, particularly during peak summer parking demands, when it is estimated that the population of Orcas Island can double in size. This impact is higher on weekends. Because the Resort is a destination and is not expected to generate commuter trips from the island to off-island employment (all employees housed on-site will work on-site), the added demand for ferry use associated with the Resort will not measurably add to the parking demand at the Ferry

Terminal. Long-term parking is more likely to be used by residents of the island commuting on a day-to-day basis to off-island employment.

Air Travel - There are several aspects of air travel that could be impacted by the demand generated by this proposed development. These include impact on the Eastsound Airport and an increase in activity by seaplanes at Rosario. A brief summary of the characteristics of these two primary airports is summarized in Table 10.

Table 10 - Airport Inventory

Air Facility	Type	Runway Length/ Condition	Based Aircraft	Average Airport Operations	Airport Operation Capacity
Eastsound Airport	Land Based/ Public	2900 ft/good	93	160/day	335/day
Rosario Airport	Sea Based/ Private	--	--	8/day	--

Note: The reported operations represent the average daily operations and fluctuate considerably by season.

As noted above, the combination of private air and private marine modes of travel are estimated to be approximately 70 one-way trips per average annual day. Assuming one-fourth of these trips are made by air, the increase in trips due to resort expansion would represent a five to ten percent increase in activity. A large number of these trips are expected to be served by existing scheduled carriers on existing schedules, which may increase planeload factors but would only marginally increase the number of plane operations, reducing the impact further.

The Eastsound airstrip has an average of 160 operations per day. It is expected that the number of private plane operations would increase by up to two operations per day during the summer days. This increase will represent a minimal impact on this airfield.

Demand for scheduled seaplane service is not expected to noticeably increase due to the planned Resort expansion although load factors on some flights on current commercial services like Kenmore Air may increase slightly. Private floatplane activity is expected to increase with one or two more landings each day on peak summer days. These added flights must operate within existing floatplane operation parameters and are not expected to create a noticeable impact on boat activity in the bay.

Marine Travel - This resort is unique in its ability to be accessed by private watercraft. With expansion, the Resort will add 131 slips to the existing 34 for a total of 165 slips. Supply for mooring demand by private boats is expected to increase by more than three times that of the existing slip area. However, the overall demand increase of Cascade Bay is expected to be much less. It is merely expected to shift closer to shore. A very important benefit of the marina expansion is that it will also facilitate improved access by commercial seaplanes and water shuttles in addition to private yachts. This will further improve access by alternative transportation modes.

County Docks - The Resort does not fall within the boundaries of a County Dock service area nor is it expected to add trips within a service area. Therefore, County Dock LOS standards are not applicable to this project.

Mopeds - Rosario currently contracts with a private contractor to rent mopeds for use by guests and intends to maintain this guest service. The contractor requires all users to wear helmets and educates the users in the safe operation of these vehicles. This activity could increase proportionally with the increase in the number of visitors to the Resort and has been accounted for in the trip generation estimates and traffic assignment associated with this proposed expansion. Accordingly, their effect has been included in the evaluation of level of service and concurrency is well.

Bicycles and Pedestrians - The proposed development plan will increase pedestrian and bicycle trips. This increase is expected to be accommodated on the walkways and trails that are to be constructed concurrent with development. These trails are intended to be separated from public roads, as much as practical. This system of trails and walkways will reduce the numbers of persons who walk along the shoulders of Rosario Road and will provide a safer environment for these activities and the linkages to off-site trail connections and destinations. The Resort also proposes to include an available fleet of bicycles for use by guests.

MITIGATION

Short-term traffic impacts will be mitigated through the implementation of good construction practice, which includes the limitation of construction traffic to daylight hours during off-peak time periods.

As part of this analysis, other options were examined to mitigate the increased traffic, pedestrian, and parking demand that will be generated by this proposal. A combination of policies, programs and physical improvements are proposed to be incorporated in a comprehensive Transportation Management Plan (TMP). These programs were organized into groups, including the following:

- Management
- Reduce or Divert Demand
- Manage Demand
- Make Physical Improvements

These measures will also address the already existing problems with the often-stressed Washington State Ferry System as well as the roadway network during peak seasons.

Management - To accomplish this, it is recommended that Rosario Resort management officially assign an individual to serve as a Transportation Management Coordinator. This should be a part-time position that can be incorporated in the duties of a relatively senior management staff person. This individual will be responsible for coordinating with San Juan County in developing, implementing, and monitoring the effectiveness of the TMP.

Reduce or Divert Demand - Programs shall be developed to reduce or divert demand. By emphasizing and creating incentives to encourage use of alternate modes and reduce demand on the Washington State Ferry System and San Juan County road network. These program elements would be incorporated into a formal program developed by the Resort in cooperation with San Juan County Public Works and will include:

- Internalize travel demand by maintaining a fleet of on-site electric shuttles that are on-call so guests can seamlessly take advantage of Resort activities and services. This will serve the Resort in its effort to make Rosario a full-service destination Resort and will preclude the need or desire for guests to leave the Resort site, thus reducing volumes on the roads.

- Maintain and expand the shuttle system to reduce individuals from making trips to Eastsound, Orcas Landing, and other primary activity centers.

- Continue and encourage private tour operators to augment the shuttle system with specialty tours to Moran State Park, Mt. Constitution, and other points of interest on and off Orcas Island.

- Implementation of programs to ensure the 30 percent mode split by marine and air transportation.
    - Resort management will continue to work with the private transportation providers to establish Resort/transportation packages, which will be seen as favorable by guests by creating direct connections and reducing the delays associated with Washington State Ferry access. The following existing private transportation providers are expected to provide service to and from the Resort:
        - San Juan Airlines/West Isle Air
        - Rose Air
        - Kenmore Air Seaplanes
        - Rugby Aviation
        - Paraclete Charters
        - Airporter Shuttle
        - Island Express Charters
        - Victoria Clipper
        - Orcas Island Shuttle

    As resort activity increases, it is likely that other operators will emerge and Rosario Resort will explore similar travel/resort packages to enhance the guest experience and give them additional flexibility.

- Continue to actively engage water shuttle systems already serving Rosario Resort. By utilizing existing systems, cost can be controlled, making travel via these operators more cost effective than operating an independent service. If the resort feels it is necessary to maintain a quality guest experience, they may wish to consider establishing a Resort owned and/or operated marine vessel(s), which would have the capability of transporting large groups of guests to and from Anacortes, etc. without the restrictions of an external operators prescheduled runs.

When the WSF system is the preferred form of transportation by the guests, Resort management will encourage non-peak arrival and departure times to and from the Resort. This could be as simple as a suggestion when making over the phone reservations or including a suggested travel time leaflet with the guest's itinerary.

A parking management plan will be developed by the Resort in cooperation with San Juan County. This will include remote and free park and shuttle alternatives utilizing either the Hilltop or Utility Tract parcels for overflow parking. This program will be particularly emphasized when special events are scheduled at the resort (large weddings, seminars or conventions, etc.). This program should also include courtesy no-parking enforcement of cars that back onto the public road network near the entrance to Rosario Resort that will be managed by Rosario Staff. A package of educational materials will be developed for distribution to guests as they check in to the resort and to residents who stay or live in the units on the upper hillside. Periodic updates of this information will be distributed to all owners in the Rosario Resort community.

Physical Improvements - Although this proposed expansion adds a substantial volume to the roadway network, the impacts fall within the standards established by San Juan County. Nonetheless, several options were examined in an effort to further mitigate and reduce the impact associated with proposed new development.

A variety of options were examined in an effort to reduce impacts on the road network beyond those outlined above. This effort concentrated on Rosario Road because this road has been identified as a corridor of concern from a safety perspective and because traffic volumes associated with the Action Alternatives are highest along this road section. Options considered included the following:

- Construct a new road from the Resort to the Olga Road

- Construct major physical improvements to the alignment of Rosario Road

- Make traffic operations, minor physical and maintenance improvements

A New Road – The master planning team examined an alternate road connection to reduce dependence on the lower section of Rosario Road. An alignment was explored that connected the vicinity of Cascade Harbor Inn up the hill to connect with Palisades Drive. Guests would then travel along Palisades Drive to Rosario Road and on to Olga Road. This road alignment involved substantial cuts and fills that would require extensive removal of mature trees leaving a scarred hillside as it traverses the steep lope up the hill to Palisades Drive. There would have been a small travel time savings (less than 30 seconds) by using this road versus Rosario Road but assuming both roads were available for use by guests, the incremental travel time advantage associated with trips to Eastsound or the Orcas Landing would be imperceptible to the average driver. Finally, because a section of Palisades Drive would also need to be widened and realigned, it is anticipated that resident along Palisades Drive would strongly oppose such improvements.

Because this alignment will cross several properties not controlled by Rosario Resort, this would require significant participation by San Juan County to condemn the necessary real estate. Since the benefit of this option was marginal as compared to the adverse environmental impacts associated with the construction, this option is not recommended as mitigation.

Road Realignment – Examination of realignment of Rosario Road was also evaluated. Such realignment would serve to increase the radius of several of the tight radius curves along the alignment and remove some but not all of the sight distance restrictions. Several challenges existed in accomplishing such realignment including the requirement to secure numerous properties from many of the lots that front along Rosario Road and the need to remove numerous large trees. Property acquisition would require San Juan County to use its authority of eminent domain and condemnation to secure a contiguous frontage sufficient to realign Rosario Road. Further road realignment would require removal of a substantial number of trees. Such removal would be in conflict with the Scenic Road Ordinance that is intended to retain the rural and natural character of this area. Unless all residents could come together with the Resort and San Juan County Public Works to voluntarily agree upon a plan to realign the roadway, this option appears to be almost as strongly opposed as construction of a new road. Finally, an often unintended consequence of improving a road alignment like the one along Rosario Road is that the smoother alignment will result in an increase in speed and still may be below be adopted design standards. If there is a reduction in accidents, the severity of those accidents will almost inventively increase resulting in significant personal injuries as well as more severe damage to vehicles.

Traffic Management Improvements – Since speed and driver error are the predominant factors relating to accidents along Rosario Road, measures to slow vehicles, provide drivers with better guidance and keep cars in their lane appear to be some of the most

effective options for enhancing safety along Rosario Road. Because these techniques are not as substantial as major reconstruction or new road construction, they are not always considered effective mitigation. Research and practice strongly suggests otherwise. Measures that would address the types of accident and safety problems exhibited along Rosario Road could include the following.

- In addition to the signage recently placed along Rosario Road by San Juan County, warning signage will be placed at of the intersection of Rosario Road at Olga Road and at curves or points where sight lines are restricted along Rosario Road while still adhering to the guidelines set forth in the Scenic Road Manual.

- Paint edge of pavement lines along the entire length of Rosario Road so drivers perceive narrower lanes and reduce their speeds.

- Installation of depressed type II (reflectorized) markers on center and edge lines along Rosario Road at curves to provide visual and tactile reference for drivers so they stay in their traffic lane and avoid crossing over the centerline or driving on shoulders or into drainage ditches. Depressed markers will eliminate the potential for removal by snow plowing equipment.

- Installation of chevron signage along curves. This should be coupled with roadside delineators with reflective markers.

- Guard rails at selected and qualified locations should also be considered as a part of a comprehensive set of improvements. Where guard rails are inappropriate, some minor filling to create wider shoulders could be an appropriate solution option.

- Establishment of an off-road trail system to and from the employee housing, which would be preferable to walking back and forth along Rosario Road.

A specific design recommendation for these improvements is outside the scope of this traffic impact analysis so it is recommended that a design study be commissioned as part of the planned Resort expansion. This study should be coordinated very closely with San Juan County Public Works staff and affected property owners in the Rosario area particularly those with property along Rosario Road.

Then, as part of the maintenance agreement associated with establishing the Plat of Rosario Estates the resort shall "assume ½ of any and all expenses incurred in maintaining,

widening, or otherwise improving the main access Road from Olga-Eastsound Road, to and through the plat of Rosario Estates.

In addition, on-site, mitigation measures that would help address the expressed concerns of guests wandering on to surrounding private property and surrounding private roadways will include the implementation of additional way-finding signage along with the posting of private property signage where appropriate.

The selection of traffic control devices and other types of signage needs to be balanced with the principles outlined by the San Juan County Scenic Roads Manual.

Implementation of these voluntary mitigation measures will assure that impacts associated with the proposed expansion as well as some existing conditions will be moderated or eliminated.

SUMMARY

The proposed expansion of Rosario is forecasted to generate 420 new Average Annual Daily Trips (about 210 trips inbound and 210 trips outbound) on a typical day. This forecast was based on generally accepted trip generation rates that were adjusted to reflect seasonal fluctuations, internal shared/combined trips, and trips made by modes other than automobile.

The proposed expansion was evaluated for Concurrency using San Juan County Methodology and was found to be concurrent under all transportation related measures. The future 2010 volumes were also forecast at locations relevant to the Rosario Resort expansion. The forecasted volumes to be generated by the expansion were then added to the 2010 volumes. Using these total volumes, these same relevant road segments were then analyzed for their expected levels of service. This analysis found the road level of service would be LOS D or better which meets or exceeds the County level of service threshold. All analyzed intersections within Eastsound are forecasted to operate at LOS C or better with the new traffic added by the proposed Rosario expansion. Therefore all Transportation Concurrency Standards for roads and intersections are satisfied.

Traffic generated by the Resort expansion will continue to rely on the Washington State Ferry System as a primary mode for travel to and from Orcas Island. The Resort expansion is forecasted to add up to 22 automobile trips during summer weekend peak travel days and 18 automobile trips during peak summer weekday commute periods. This demand will decline substantially during winter months. This demand represents a six to eleven percent increase in Ferry traffic demand, which is about the same as the daily variation in traffic volume experienced at the landing and is therefore expected to have a minimal impact.

This development is not expected to noticeably generate the commuter type trips that would create a demand for parking at the Ferry Terminal as with permanent island-residents who

commute to off-island employment. However, the Resort currently and will continue to help mitigate this deficiency by offering three shuttles operated by the Resort to guests and residents to shuttle them back and forth between the resort and the Orcas terminal.

There would be an additional 70 non-privately owned automobile vehicle trips made by a combination of air and marine travel, the majority of which would be marine. This increase represents less than a ten percent increase in air travel activity. Because of the existing number of scheduled air travel opportunities that have capacity to accommodate much of this demand, this increase in activity can be easily accommodated by the facilities that are available to serve Rosario Resort with negligible impact.

Supply for mooring demand by private boats is expected to increase by more than three times that of the existing slip area. However, the overall demand increase of Cascade Bay is expected to be much less. It is merely expected to shift closer to shore. A very important benefit of the marina expansion is that it will also facilitate improved access by commercial seaplanes and water shuttles in addition to private yachts. This will further improve access by alternative transportation modes.

Rosario Resort does not fall within the boundaries of a County Dock service area nor is it expected to add trips within a service area. Therefore, County Dock LOS standards are not applicable to this project.

There would be a proportionate increase in moped, bicycle, and pedestrian travel due to the increased activity in the resort, this has been accounted for our in trip generation estimate for this proposed expansion. The combination of helmet requirements and education programs for the moped rentals and the trail system to serve bicycle and pedestrian activities will enhance the safety associated with the increase in these modes of travel.

Safety issues concerning Rosario Road will be addressed with the mitigation mentioned above which includes clearer markings and signage for Rosario Road as well as an improved trail system which will in effect pull pedestrians from Rosario Road and place them on the trail system, reducing the possibility of vehicle/pedestrian conflicts.

With the proposed development plan in place, there will be approximately 306 units of guest accommodations on-site. There would be approximately 500 parking stalls available on-site. This amount of available parking is expected to be sufficient but not excessive and will be strategically placed throughout the site according to where demand is expected rather than in one centralized location. In the event that peak-season parking demand spikes require additional parking, the Resort has already designated open space in the Hilltop area of the Resort for spillover parking which could accommodate an additional 100 vehicles as well as up to 110 trailers in the attempt of eliminating the potential of spill-over parking along Rosario Road. If this were to occur, shuttle service would be provided between the spillover parking area and the Resort's core.

LOS WORKSHEETS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Lover's Ln / Main Street*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2004*
Analysis Time Period	*Pk Hr (10% AADT)*		

Project Description *Based on Hart Pacific Engineering dist and aadt volumes*

East/West Street: *Main Street* | North/South Street: *Lover's Lane*

Intersection Orientation: *North-South* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*161*	*90*	*172*	*24*	*84*	*289*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*90*	*172*	*24*	*84*	*0*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*147*	*0*	*21*	*140*	*140*	*172*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*147*	*0*	*21*	*0*	*0*	*0*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*2*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*24*		*168*				
C (m) (vph)		*1257*		*749*				
v/c		*0.02*		*0.22*				
95% queue length		*0.06*		*0.86*				
Control Delay		*7.9*		*11.7*				
LOS		*A*		*B*				
Approach Delay	--	--	*11.7*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Lover's Ln / Main Street*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091704*	Analysis Year	*2010 Future Without*
Analysis Time Period	*Pk Hr (10% AADT)*		

Project Description *Based on Hart Pacific Engineering dist and aadt volumes*

East/West Street: *Main Street* | North/South Street: *Lover's Lane*

Intersection Orientation: *North-South* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*161*	*124*	*236*	*34*	*117*	*289*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*124*	*236*	*34*	*117*	*0*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*201*	*0*	*30*	*140*	*140*	*172*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*201*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*2*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*34*		*231*				
C (m) (vph)		*1156*		*604*				
v/c		*0.03*		*0.38*				
95% queue length		*0.09*		*1.84*				
Control Delay		*8.2*		*14.6*				
LOS		*A*		*B*				
Approach Delay	--	--	*14.6*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Lover's Ln / Main Street*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2010 Future With Project*
Analysis Time Period	*Pk Hr (10% AADT)*		

Project Description *Based on Hart Pacific Engineering dist and aadt volumes*

East/West Street: *Main Street* | North/South Street: *Lover's Lane*

Intersection Orientation: *North-South* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*161*	*127*	*239*	*34*	*120*	*289*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*127*	*239*	*34*	*120*	*0*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*204*	*0*	*30*	*140*	*140*	*172*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*204*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*2*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*34*		*234*				
C (m) (vph)		*1150*		*598*				
v/c		*0.03*		*0.39*				
95% queue length		*0.09*		*1.91*				
Control Delay		*8.2*		*14.9*				
LOS		*A*		*B*				
Approach Delay	--	--	*14.9*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*2004 AADT*
Analysis Time Period	*pk hr (10% AADT)*

Site Information

Intersection	*Main St / Prune Alley*
Jurisdiction	*San Juan County*
Analysis Year	*2004*

Project Description *based on HPE pk hr distribution and AADT volumes*

East/West Street: *Main Street* | North/South Street: *Prune Alley*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*101*	*139*	*2*	*2*	*164*	*13*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*101*	*139*	*2*	*2*	*164*	*13*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*17*	*4*	*0*	*63*	*4*	*135*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*17*	*4*	*0*	*63*	*4*	*135*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*-2*			*0*	
Flared approach		*Y*			*N*	
Storage		*2*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*101*	*2*		*21*			*202*	
Capacity, c_m (vph)	*1352*	*1394*					*638*	
v/c ratio	*0.07*	*0.00*					*0.32*	
Queue length (95%)	*0.24*	*0.00*					*1.38*	
Control Delay (s/veh)	*7.9*	*7.6*		*16.5*			*13.3*	
LOS	*A*	*A*					*B*	

Approach delay (s/veh)	--	--	*16.5*	*13.3*
Approach LOS	--	--	*C*	*B*

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*091704*
Analysis Time Period	*pk hr (10% AADT)*

Site Information

Intersection	*Main St / Prune Alley*
Jurisdiction	*San Juan County*
Analysis Year	*2010 Future Without*

Project Description *based on HPE pk hr distribution and AADT volumes*

East/West Street: *Main Street* | North/South Street: *Prune Alley*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*137*	*189*	*3*	*3*	*224*	*18*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*137*	*189*	*3*	*3*	*224*	*18*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*	*5*	*0*	*86*	*5*	*184*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*25*	*5*	*0*	*86*	*5*	*184*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*-2*			*0*	
Flared approach		*Y*			*N*	
Storage		*2*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*137*	*3*		*30*			*275*	
Capacity, c_m (vph)	*1279*	*1335*					*516*	
v/c ratio	*0.11*	*0.00*					*0.53*	
Queue length (95%)	*0.36*	*0.01*					*3.33*	
Control Delay (s/veh)	*8.2*	*7.7*		*24.6*			*19.9*	
LOS	*A*	*A*					*C*	

Approach delay (s/veh)	--	--	*24.6*	*19.9*
Approach LOS	--	--	*C*	*C*

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*2004 AADT*
Analysis Time Period	*pk hr (10% AADT)*

Site Information

Intersection	*Main St / Prune Alley*
Jurisdiction	*San Juan County*
Analysis Year	*2010 Future With Project*

Project Description *based on HPE pk hr distribution and AADT volumes*

East/West Street: *Main Street* | North/South Street: *Prune Alley*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*137*	*192*	*3*	*3*	*227*	*31*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*137*	*192*	*3*	*3*	*227*	*31*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*	*5*	*1*	*95*	*5*	*184*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*25*	*5*	*1*	*95*	*5*	*184*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*-2*			*0*	
Flared approach		*Y*			*N*	
Storage		*2*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*137*	*3*		*31*			*284*	
Capacity, c_m (vph)	*1262*	*1331*		*216*			*497*	
v/c ratio	*0.11*	*0.00*		*0.14*			*0.57*	
Queue length (95%)	*0.37*	*0.01*		*0.50*			*3.86*	
Control Delay (s/veh)	*8.2*	*7.7*		*24.6*			*21.8*	
LOS	*A*	*A*		*C*			*C*	

Approach delay (s/veh)	--	--	*24.6*	*21.8*
Approach LOS	--	--	*C*	*C*

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Terrill Beach / Crescent Beach*
Agency/Co.	*Transportation Solutions, Inc.*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2004*
Analysis Time Period	*Peak Hour*		

Project Description *Based on HPE pk hr distribution and AADT volumes*

East/West Street: *Crescent Beach Road*	North/South Street: *Terrill Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*150*	*55*	*4*	*4*	*42*	*29*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*150*	*55*	*4*	*4*	*42*	*29*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*2*	*9*	*6*	*13*	*2*	*115*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*2*	*9*	*6*	*13*	*2*	*115*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*-1*			*2*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*150*	*4*		*17*			*130*	
C (m) (vph)	*1480*	*1495*		*553*			*876*	
v/c	*0.10*	*0.00*		*0.03*			*0.15*	
95% queue length	*0.34*	*0.01*		*0.10*			*0.52*	
Control Delay	*7.7*	*7.4*		*11.7*			*9.8*	
LOS	*A*	*A*		*B*			*A*	
Approach Delay	--	--	*11.7*			*9.8*		
Approach LOS	--	--	*B*			*A*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Terrill Beach / Crescent Beach*
Agency/Co.	*Transportation Solutions, Inc.*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2010 Future Without*
Analysis Time Period	*Peak Hour*		

Project Description *Based on HPE pk hr distribution and AADT volumes*

East/West Street: *Crescent Beach Road*	North/South Street: *Terrill Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*185*	*69*	*5*	*5*	*53*	*36*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*185*	*69*	*5*	*5*	*53*	*36*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*2*	*12*	*7*	*17*	*2*	*142*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*2*	*12*	*7*	*17*	*2*	*142*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*-1*			*2*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*185*	*5*		*21*			*161*	
C (m) (vph)	*1457*	*1476*		*472*			*824*	
v/c	*0.13*	*0.00*		*0.04*			*0.20*	
95% queue length	*0.44*	*0.01*		*0.14*			*0.73*	
Control Delay	*7.8*	*7.4*		*13.0*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*13.0*			*10.4*		
Approach LOS	--	--	*B*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*Terrill Beach / Crescent Beach*
Agency/Co.	*Transportation Solutions, Inc.*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2010 Future With Project*
Analysis Time Period	*Peak Hour*		

Project Description *Based on HPE pk hr distribution and AADT volumes*

East/West Street: *Crescent Beach Road*	North/South Street: *Terrill Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*200*	*77*	*7*	*6*	*59*	*37*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*200*	*77*	*7*	*6*	*59*	*37*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*2*	*13*	*8*	*18*	*2*	*153*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*2*	*13*	*8*	*18*	*2*	*153*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*-1*			*2*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*200*	*6*		*23*			*173*	
C (m) (vph)	*1449*	*1464*		*446*			*802*	
v/c	*0.14*	*0.00*		*0.05*			*0.22*	
95% queue length	*0.48*	*0.01*		*0.16*			*0.82*	
Control Delay	*7.9*	*7.5*		*13.5*			*10.7*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*13.5*			*10.7*		
Approach LOS	--	--	*B*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*091504*
Analysis Time Period	*pk hr (10% of AADT)*

Site Information

Intersection	*mt. baker Rd / Nbeach Rd*
Jurisdiction	*San Juan County*
Analysis Year	*2004*

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *Mt. Baker Road* | North/South Street: *N. Beach Rd.*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*19*	*40*	*41*	*35*	*42*	*12*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*19*	*40*	*41*	*35*	*42*	*12*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*48*	*60*	*55*	*12*	*41*	*31*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*48*	*60*	*55*	*12*	*41*	*31*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*19*	*35*		*163*			*84*	
Capacity, c_m (vph)	*1502*	*1467*		*714*			*713*	
v/c ratio	*0.01*	*0.02*		*0.23*			*0.12*	
Queue length (95%)	*0.04*	*0.07*		*0.88*			*0.40*	
Control Delay (s/veh)	*7.4*	*7.5*		*11.5*			*10.7*	
LOS	*A*	*A*		*B*			*B*	

Approach delay (s/veh)	--	--	*11.5*	*10.7*
Approach LOS	--	--	*B*	*B*

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*091504*
Analysis Time Period	*pk hr (10% of AADT)*

Site Information

Intersection	*mt. baker Rd / Nbeach Rd*
Jurisdiction	*San Juan County*
Analysis Year	*2010 Future Without*

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *Mt. Baker Road* | North/South Street: *N. Beach Rd.*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*25*	*51*	*52*	*45*	*54*	*16*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*25*	*51*	*52*	*45*	*54*	*16*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*61*	*76*	*70*	*16*	*52*	*40*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*61*	*76*	*70*	*16*	*52*	*40*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*25*	*45*		*207*			*108*	
Capacity, c_m (vph)	*1481*	*1440*		*647*			*648*	
v/c ratio	*0.02*	*0.03*		*0.32*			*0.17*	
Queue length (95%)	*0.05*	*0.10*		*1.40*			*0.60*	
Control Delay (s/veh)	*7.5*	*7.6*		*13.2*			*11.7*	
LOS	*A*	*A*		*B*			*B*	

Approach delay (s/veh)	--	--	*13.2*	*11.7*
Approach LOS	--	--	*B*	*B*

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Richard Hutchinson*
Agency/Co.	*Transportation Solutions, Inc.*
Date Performed	*091504*
Analysis Time Period	*pk hr (10% of AADT)*

Site Information

Intersection	*mt. baker Rd / Nbeach Rd*
Jurisdiction	*San Juan County*
Analysis Year	*2010 Future With Project*

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *Mt. Baker Road* | North/South Street: *N. Beach Rd.*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*25*	*55*	*52*	*45*	*60*	*21*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*25*	*55*	*52*	*45*	*60*	*21*
Proportion of heavy vehicles, P_{HV}	*10*	--	--	*10*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*61*	*76*	*70*	*21*	*52*	*40*
Peak-hour factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate (veh/h)	*61*	*76*	*70*	*21*	*52*	*40*
Proportion of heavy vehicles, P_{HV}	*10*	*10*	*10*	*10*	*10*	*10*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
Volume, v (vph)	*25*	*45*		*207*			*113*	
Capacity, c_m (vph)	*1467*	*1435*		*637*			*627*	
v/c ratio	*0.02*	*0.03*		*0.32*			*0.18*	
Queue length (95%)	*0.05*	*0.10*		*1.43*			*0.66*	
Control Delay (s/veh)	*7.5*	*7.6*		*13.4*			*12.0*	
LOS	*A*	*A*		*B*			*B*	

Approach delay (s/veh)	--	--	*13.4*	*12.0*
Approach LOS	--	--	*B*	*B*

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJH*	Intersection	*North Beach Rd / "A" St*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2004*
Analysis Time Period	*pk hr (10% of AADT)*		

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *"A" Street*	North/South Street: *North Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*63*	*53*	*22*	*9*	*65*	*115*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*63*	*53*	*22*	*9*	*65*	*115*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*55*	*55*	*68*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*55*	*55*	*68*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*					*LTR*	
v (vph)	*63*	*9*					*178*	
C (m) (vph)	*1349*	*1475*					*667*	
v/c	*0.05*	*0.01*					*0.27*	
95% queue length	*0.15*	*0.02*					*1.09*	
Control Delay	*7.8*	*7.5*					*12.4*	
LOS	*A*	*A*					*B*	
Approach Delay	--	--				*12.4*		
Approach LOS	--	--				*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJH*	Intersection	*North Beach Rd / "A" St*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2010 Future Without*
Analysis Time Period	*pk hr (10% of AADT)*		

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *"A" Street*	North/South Street: *North Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*95*	*80*	*33*	*14*	*98*	*173*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*95*	*80*	*33*	*14*	*98*	*173*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*83*	*83*	*102*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*83*	*83*	*102*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*					*LTR*	
v (vph)	*95*	*14*					*268*	
C (m) (vph)	*1248*	*1428*					*537*	
v/c	*0.08*	*0.01*					*0.50*	
95% queue length	*0.25*	*0.03*					*2.93*	
Control Delay	*8.1*	*7.5*					*18.3*	
LOS	*A*	*A*					*C*	
Approach Delay	--	--				*18.3*		
Approach LOS	--	--				*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Richard Hutchinson*	Intersection	*North Beach Rd / "A" St*
Agency/Co.	*TSI*	Jurisdiction	*San Juan County*
Date Performed	*091504*	Analysis Year	*2010 Future With Project*
Analysis Time Period	*pk hr (10% of AADT)*		

Project Description *based on HPE distribution and AADT volumes*

East/West Street: *"A" Street*	North/South Street: *North Beach Road*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*100*	*82*	*39*	*14*	*102*	*173*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*100*	*82*	*39*	*14*	*102*	*173*
Percent Heavy Vehicles	*10*	--	--	*10*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*83*	*83*	*107*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*83*	*83*	*107*
Percent Heavy Vehicles	*10*	*0*	*10*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

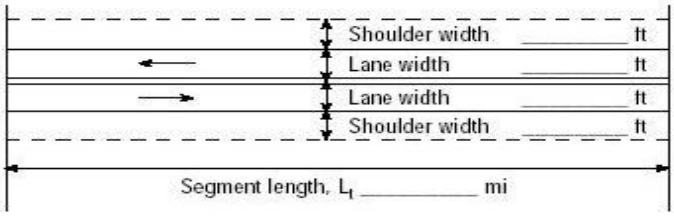
Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*					*LTR*	
v (vph)	*100*	*14*					*273*	
C (m) (vph)	*1243*	*1418*					*526*	
v/c	*0.08*	*0.01*					*0.52*	
95% queue length	*0.26*	*0.03*					*3.16*	
Control Delay	*8.1*	*7.6*					*19.2*	
LOS	*A*	*A*					*C*	
Approach Delay	--	--				*19.2*		
Approach LOS	--	--				*C*		

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	RJH	Highway	Orcas Road
Agency or Company	Transportation Solutions, Inc	From/To	MP 7.00
Date Performed	091204	Jurisdiction	San Juan Co.
Analysis Time Period	PM Peak Hour	Analysis Year	2004

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	510 veh/h
Directional split	60 / 40
Peak-hour factor, PHF	0.91
No-passing zone	80
% Trucks and Buses , P_T	11 %
% Recreational vehicles, P_R	4%
Access points/ mi	6

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	0.93
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.9
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.1
Heavy-vehicle adjustment factor, f_{HV} $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.907
Two-way flow rate [1], v_p (pc/h) $v_p=V/(PHF*f_G*f_{HV})$	665
v_p * highest directional split proportion [2] (pc/h)	399

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	mi/h	Base free-flow speed, $BFFS_{FM}$	50.0 mi/h
Observed volume, V_f	veh/h	Adj. for lane width and shoulder width [3], f_{LS} (Exhibit 20-5)	1.7 mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	46.8 mi/h	Adj. for access points, f_A (Exhibit 20-6)	1.5 mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	46.8 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	3.2
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	38.5

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	0.94
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.5
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, f_{HV} $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.948
Two-way flow rate [1], v_p (pc/h) $v_p=V/(PHF*f_G*f_{HV})$	629
v_p * highest directional split proportion [2] (pc/h)	377
Base percent time-spent-following, BPTSF(%) $BPTSF=100(1-e^{-0.000879v_p})$	42.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	18.9
Percent time-spent-following, PTSF(%) $PTSF=BPTSF+f_{d/np}$	61.4

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	C
Volume to capacity ratio v/c $v/c=V_p/3{,}200$	0.21
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi) $VMT_{15}=0.25L_t(V/PHF)$	210
Peak-hour vehicle-miles of travel, VMT_{60} (veh- mi) $VMT_{60}=V*L_t$	765
Peak 15-min total travel time, TT_{15} (veh-h) $TT_{15}=VMT_{15}/ATS$	5.5

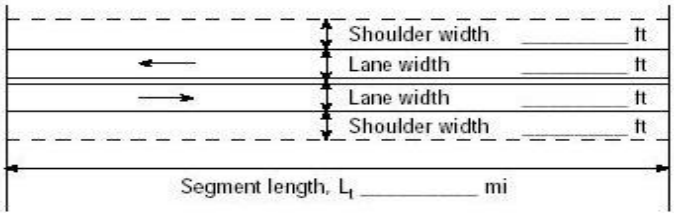
Notes

1. If v_p >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split v_p>= 1,700 pc/h, terminated anlysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	RJH	Highway	Orcas Road
Agency or Company	Transportation Solutions, Inc	From/To	MP 7.00
Date Performed	091204	Jurisdiction	San Juan Co.
Analysis Time Period	PM Peak Hour	Analysis Year	2010 Without Project

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	584 veh/h
Directional split	60 / 40
Peak-hour factor, PHF	0.91
No-passing zone	80
% Trucks and Buses , P_T	11 %
% Recreational vehicles, P_R	4%
Access points/ mi	6

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	0.93
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.9
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.1
Heavy-vehicle adjustment factor, f_{HV} $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.907
Two-way flow rate [1], v_p (pc/h) $v_p=V/(PHF*f_G*f_{HV})$	761
v_p * highest directional split proportion [2] (pc/h)	457

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	mi/h	Base free-flow speed, $BFFS_{FM}$	50.0 mi/h
Observed volume, V_f	veh/h	Adj. for lane width and shoulder width [3], f_{LS} (Exhibit 20-5)	1.7 mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	46.8 mi/h	Adj. for access points, f_A (Exhibit 20-6)	1.5 mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	46.8 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	2.8
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	38.1

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	0.94
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.5
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, f_{HV} $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.948
Two-way flow rate [1], v_p (pc/h) $v_p=V/(PHF*f_G*f_{HV})$	720
v_p * highest directional split proportion [2] (pc/h)	432
Base percent time-spent-following, BPTSF(%) $BPTSF=100(1-e^{-0.000879v_p})$	46.9
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	16.1
Percent time-spent-following, PTSF(%) $PTSF=BPTSF+f_{d/np}$	63.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	C
Volume to capacity ratio v/c $v/c=V_p/3{,}200$	0.24
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi) $VMT_{15}=0.25L_t(V/PHF)$	241
Peak-hour vehicle-miles of travel, VMT_{60} (veh- mi) $VMT_{60}=V*L_t$	876
Peak 15-min total travel time, TT_{15} (veh-h) $TT_{15}=VMT_{15}/ATS$	6.3

Notes

1. If v_p >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split v_p>= 1,700 pc/h, terminated anlysis-the LOS is F.

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... P 7.00 ORCAS ROAD
ANALYST..... RH
TIME OF ANALYSIS..... Peak Period
DATE OF ANALYSIS..... 10-27-2005
OTHER INFORMATION.... FUTURE WITH PROJECT

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	10
PERCENTAGE OF BUSES.....	1
PERCENTAGE OF RECREATIONAL VEHICLES.....	4
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	4
PERCENT NO PASSING ZONES.....	80

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.85	.94	.71
B	5	3.4	3.9	.85	.94	.65
C	5	3.4	3.9	.85	.94	.65
D	5	2.9	3.3	.85	.94	.66
E	5	2.9	3.3	.92	.94	.66

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 597
ACTUAL FLOW RATE: 597

LOS	SERVICE FLOW RATE	V/C
A	64	.04
B	218	.15
C	436	.3
D	681	.46
E	1442	.9

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... Rosario Rd MP.10
ANALYST..... RH
TIME OF ANALYSIS..... Peak Period
DATE OF ANALYSIS..... 10-27-2005
OTHER INFORMATION.... FUTURE WITH PROJECT

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	1
PERCENTAGE OF RECREATIONAL VEHICLES.....	4
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	10
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	0
PERCENT NO PASSING ZONES.....	100

B) CORRECTION FACTORS

MOUNTAINOUS TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	7	5.7	5	.85	.94	.75
B	10	6	5.2	.85	.94	.72
C	10	6	5.2	.85	.94	.72
D	12	6.5	5.2	.85	.94	.69
E	12	6.5	5.2	.92	.94	.69

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 156
ACTUAL FLOW RATE: 156

LOS	SERVICE FLOW RATE	V/C
A	17	.01
B	160	.1
C	256	.16
D	512	.33
E	1309	.78

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... Cascade Way
ANALYST..... rh
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 10-27-2005
OTHER INFORMATION.... FUTURE WITH PROJECT

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	1
PERCENTAGE OF RECREATIONAL VEHICLES.....	4
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	.9
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	10
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	0
PERCENT NO PASSING ZONES.....	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.85	.94	.86
B	5	3.4	3.9	.85	.94	.82
C	5	3.4	3.9	.85	.94	.82
D	5	2.9	3.3	.85	.94	.84
E	5	2.9	3.3	.92	.94	.84

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 52
ACTUAL FLOW RATE: 58

LOS	SERVICE FLOW RATE	V/C
A	57	.03
B	238	.13
C	513	.28
D	808	.43
E	1830	.9

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... PALISADES ROAD
ANALYST..... RH
TIME OF ANALYSIS..... PEAK HOUR
DATE OF ANALYSIS..... 10-27-2005
OTHER INFORMATION.... FUTURE WITH PROJECT

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	1
PERCENTAGE OF RECREATIONAL VEHICLES.....	4
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	.9
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	10
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	0
PERCENT NO PASSING ZONES.....	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.85	.94	.86
B	5	3.4	3.9	.85	.94	.82
C	5	3.4	3.9	.85	.94	.82
D	5	2.9	3.3	.85	.94	.84
E	5	2.9	3.3	.92	.94	.84

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 85
ACTUAL FLOW RATE: 94

LOS	SERVICE FLOW RATE	V/C
A	57	.03
B	238	.13
C	513	.28
D	808	.43
E	1830	.9

LOS FOR GIVEN CONDITIONS: B

APPENDIX E

PUBLIC COMMENT LETTERS (NON-SUBSTANTIVE)

Every medium of conveying comments was scrutinized for substantive comments. All letters containing substantive comments appear in and were responded to in Chapter 6. These substantive comments provide the foundation from which the Response to Comments is based.

An additional 20 letters were received that did not contain substantive comments. These letters were read and placed in the project file, as well as re-printed in this Appendix E of the FEIS. Additionally, Table E-1 indicates the names of people who submitted non-substantive comments on the DEIS.

Table E-1
Non-Substantive Comment Individuals

Sender	Date	Support (Y/N)
Averna, T.	10.05.05	
Bankson, J.	09.28.05	Y
Borgen, S.	09.23.05	Y
Bose, P.	09.21.05	Y
Brooks-Kenmore Air	09.15.05	Y
Coleman, J.	10.05.05	Y
Community Statement 1	09.20.05	N (48 individuals)
Community Statement 2	09.22.05	N (29 individuals)
Crawford, C.	10.05.05	N
Deuel, J.	09.23.05	Y
Geiser, S.	09.23.05	Y
Hansen, D.	10.03.05	Y
Liddle, L.	10.06.05	N
Peacock, C.	10.06.05	Y
Pomeroy, P.	10.06.05	Y
Prince, J. and F.	09.11.05	Y
Prince, J. and F. Comment Sheet	08.29.05	Y
Public Support Statement	No date	Y (181 individuals)
Roseberry, A.	No date	Y
Stephens, V.	10.05.05	Y
Stupke, D.F.	09.01.05	Y

From: Tom Averna [chartert@rockisland.com]
Sent: Wednesday, October 05, 2005 8:10 AM
To: Martin Blackman
Subject: Rosario Resort master plan

Mr. Blackman,

I am in total support regarding the proposed master plan for the redevelopment of Rosario Resort, namely the alternative action plan B.

As a business owner, I feel Rosario Resort is the most important business on Orcas Island, employing many islanders, and bringing thousands of visitors to our island. The trickle down effects are extremely important to this island.

Thank you for the opportunity to comment on this issue.

Tom Averna
Deer Harbor Charters
Orcas Island, Wash.

Martin Blackman

From: Jim Bankson [jimbankson@yahoo.com]
Sent: Wednesday, September 28, 2005 3:37 PM
To: Martin Blackman
Subject: Rosario Master Plan / DEIS Comments

Jim Bankson Letter to Martin B...

Good Afternoon Martin,

Please add my comments in the attachment to the growing file of supporters and non-supporters of the plan.

Thanks for your help.

Jim

Jim Bankson
1400 Rosario Road
Eastsound, WA 98245

August 30, 2005

San Juan County
Community Development & Planning
Martin Blackman
135 Rhone St.
PO Box 947
Friday Harbor, WA 98250

RE: Rosario Resort Master Plan

I want to commend you and the rest of the team for your past and ongoing work on the Rosario Resort Master Plan (RRMP) and the Draft Environmental Impact Statement (DEIS). As the General Manager of Rosario, I personally feel a certain responsibility to the 200 employees, 30-40 independent Spa contract therapists and the island business community. Of the group of employees, over 135 of them have made Rosario their full time year-round job, and live on Orcas Island.
For the most part, the spa therapists all make Orcas their home. The balance of our staff, in high season, are Orcas Island High School students and college students from the US & 24 students from abroad. All of these employees are not just employees, they are real people that live on Orcas and help make Orcas Island a viable place for everyone to live.

My goal with this letter is to make sure everyone involved with the decision making process at the county and the island community understand the very real economic possibility of what can easily happen under the "No Action Alternative". Here is the basic economic impact of what would happen if Rosario were to cease operating as a resort:

- 200 jobs end on Orcas Island taking $3,500,000 in wages out of the Orcas and San Juan County economy. Contrary to popular belief, a high percentage of these jobs are held by long time Orcas residents.
- Therapist independent contractor wages of $290,000 will cease.

Every lost job affects a minimum of another 2.5 jobs elsewhere in the county, so the job loss would directly hurt another 500 working people in the county.

- $3,000,000 spent annually by Rosario for operational support including spending at numerous local island businesses would simply stop.
- Rosario represents 20% of the hotel/resort business in San Juan County, collecting over $67,000 in bed tax. The bed tax is matched by state funds; the lack of Rosario bed tax dollars would take $134,000 out of the county tourism marketing program. Rosario spends another $600,000+ in marketing to promote Rosario, Orcas and the San Juan Islands on a year round basis.

- Rosario hosts over 50,000 hotel guests per year that recreate and further spend money in the county. A recent Michigan State University tourism spending study developed an Economic Impact Calculator for analysis of tourism spending. Here are the results using 50,000 tourists as the basis. "50,000 visitor party nights in the area results in $8,549,145 in total spending. 86% of this spending is captured by the local economy, yielding $7,362,205 in direct sales to tourism-related firms. These sales generate $2,722,140 in direct personal income, $4,063,203 in direct value added and support 188 jobs. Every dollar of direct sales yield 1.652 in total sales effects including indirect and induced effects. With multiplier effects, tourist spending results in $12,164,813 total sales, $4,462,330 in total personal income, $7,008,019 total value added and supports 253 jobs." I realize that the San Juan Islands are not Michigan, but the multiplier effect still works.
- Rosario hosts over 15,000 guests per year via the Rosario Marina. A 1999 study commissioned by the Washington State Tourism Division for Region IV boaters indicated a spending level of $110.17 per person not including moorage. Based on the 1999 study these boaters represent $1,652,550 in spending; CPI correction for inflation would bring this spending to $1,930,289.00 in 2005 dollars.
- Rosario pays property taxes of about $89,500 per year. It also generates $234,000 in taxes from room revenues and an additional sales tax of $100,000 from dining, spa and other operations. The loss of San Juan County's portion of taxes collected would be devastating to the county budget.

  Every business and service in the county would feel dramatic loss of cash flow as the multipliers of negative spending move through the county.
- Barbershop Economics – If you don't believe in the Michigan Study or the Dept of Tourism Study, then a visit to Susie's Barbershop in Eastsound will provide a quick economic study. Suzie claims a proven multiplier of 5, backed up by her marking a $20.00 bill from a Rosario employee given out as change. The bill came back through her shop 5 times that year.

I feel that the Alternative B, considerably smaller than Alternative A, will still provide long term employment for years to come with a viable resort that is self supporting. I am asking for you to support Alternative B as the preferred Alternative for the RRMP in the DEIS. Privatization of Rosario under the "No Action Alternative" would be a financial disaster for San Juan County, Orcas residents, the Rosario neighborhood and the 200 employees of Rosario.

This is my personal opinion and not necessarily that of Olympus Real Estate Partners or RockResorts.

Once again, thank you for your continued work on this project and I look forward to seeing a positive outcome.

Jim Bankson

Martin Blackman

From: Sammy Borgen [borg_queen80@hotmail.com]
Sent: Friday, September 23, 2005 3:27 PM
To: Martin Blackman
Subject: Rosario Master Plan EIS

Martin Blackman
Senior Planner
San Juan County

September 23, 2005

Dear Martin Blackman,

My name is Samantha Borgen. I am the head groundskeeper at Rosario Resort. Rosario has employed me for 2 years. I first started as a groundskeeper and after five months on the job, I was promoted to the position I currently hold.

While I have been employed, it is has been my goal to restore the landscape and maintain it to the standard that is expected of a Rock Resort. As our current ownership cannot fully fund this goal, my hard working crew has made it what it is today. While the entire staff at the resort works just as hard, I don't see the property ever being a premier resort without major and dramatic change.

I am in favor of Alternative Action Plan B of the Rosario Master Plan. Selfishly, I would like to keep my job and my hard working staff. Although I am new to the Island, I have grown to love the community. My fellow coworkers, and I represent a large part of the local economy. If no action is taken and the resort is sold to private real estate, the local services and vendors will also suffer. Currently, 115 employees are local. A good portion of those employees and members of the community remember what it as like to not be employed while the resort had to shut down for a remodel a few winters ago. While that loss of income was temporary for most of our year-round employees, closing the resort would be devastating. The co-workers that have become my closest friends would be forced to seek employment elsewhere on the Island or move.

For most of us, and myself included, we enjoy the quality of life on Orcas Island. I would hate to see the resort carved up and sold to the highest bidder. This island doesn't need more million-dollar homes disrupting the shoreline. Keeping Rosario as a resort provides public access to the beaches and waterfront that private ownership would eliminate.

The resort has a historic significance that stretches back to the early 1900's. When I tell people that I work at Rosario, a surprising amount will tell me they have visited the resort at some time. Quite a few guests tell me of their family traditions that bring them to Rosario for vacations year after year. And finally there are those guests that have been visiting since the property first became a resort in the 1960's. Rosario Resort is important to a lot of people, just not the employees and ownership.

I firmly believe that if the Rosario Master Plan is approved, the jobs, the tradition and the island lifestyle we have come to enjoy will carry on long into the future.

Sincerely,

Samantha A. Borgen
Head Groundskeeper
Rosario Resort

Martin Blackman
San Juan County Planning Department
PO Box 947
Friday Harbor, WA 98250

September 21, 2005

Dear Mr. Blackman,

I own a home in Olga and work year-round, full-time at Rosario Resort. I believe that the Rosario redevelopment plan should be approved because of the positive impacts this project will have on the environment in the Rosario area and on future development throughout the county.

In the Rosario area, even just the improvements to erosion control and wastewater treatment systems will have positive impacts that far outweigh the short-term disruption of the ecology and the minor permanent aesthetic changes. Overall, improvements to resort facilities will be an asset to the Rosario community, while preservation of the Moran Mansion as a public area will be appreciated by all who inhabit and visit Orcas Island.

What types of employment and areas for homes will be developed if this plan is rejected? All the islands will suffer permanently if Rosario Resort is not allowed to change in a way that preserves the hospitality legacy. The project being considered is essential to the stability of San Juan County's economy, and thus to the stability of development plans for the whole county. Any changes to the economy have far-ranging impacts on development. This plan allows sustainable employment at Rosario Resort as well as controlled residential growth with environmentally-freindly infrastructure in a naturally-confined area. If the Rosario redevelopment plan is rejected, the burden for providing jobs and allowing growth will be shifted elsewhere. It is likely that jobs lost will move out of the county, and development displaced will occur in areas without the same quality of infrastructure nor defined boundaries.

Please allow Rosario to remain an asset to the county.

Sincerely,

Phillip S. Bose

Phillip S. Bose

PO Box 94
Olga, WA 98279
phone 376-3087

Kenmore air harbor P.O. BOX 82064 • KENMORE, WASHINGTON 98028-0064 • PHONE (425) 486-1257 • FAX (425) 485-4774

September 15, 2005

Mr. Martin Blackman
Community Development and Planning
San Juan County
PO Box 947
Friday Harbor, WA 98250

Regarding: Rosario Resort DEIS

Dear Mr. Blackman,

Kenmore Air voices strong support for Action Alternative B (The Preferred Alternative).

For more than 18 years Kenmore Air has maintained a key partnership role with Rosario Resort as a principal provider of air transportation. Kenmore offers year round daily scheduled service direct to Rosario Resort from downtown Seattle and the north end of Lake Washington. In addition to the seaplane service Kenmore offers the only all-weather land plane scheduled service to Orcas Island from Seattle. For both land and sea options all flights connect with SeaTac through our complementary van service. Not only has this air service brought valuable guests to the resort, the Rosario seaplane base has served local island residents and their visitors. For the complete year of 2004 Kenmore flew 5,436 passengers to and from Rosario. On an island with few viable transportation options, especially ones that are convenient and fast, Kenmore's land and seaplane scheduled service is viewed by most as an essential community service.

Any review of the alternatives should include consideration for the economic effects on Rosario's key partners especially if those partners contribute valuable services and benefits to the local economy and service sector. In our case, any alternative that creates the possibility of failure for the Resort would undoubtedly have a direct and measurable negative economic impact on our company as well as the community. Simply put, if Rosario were to cease operations Kenmore Air would lose a significant portion of its total passenger enplanements. While the annual total number of passengers flown to and from Rosario account for a little less than 20 % of Kenmore's total of all 7 scheduled destinations within the San Juan Islands the more important fact is that the resort contributes significantly to

our passenger counts during the winter. During the winter months of November through February Rosario often is the number one destination and often represents 30% or more of Kenmore's total passengers.

This winter revenue, derived from Rosario's own client base and the surrounding community, is essential to Kenmore's continued ability to serve the island communities with convenient and cost effective air service during the winter months. Even with current and past passenger counts, Kenmore operates at a significant loss throughout these months. Should passenger counts decline further, Kenmore would likely find it necessary to cease winter operations altogether and resume service only during the spring, summer and fall.

In sum, Kenmore strongly supports preferred alternative B as this alternative will most likely ensure the economic viability of the Resort and the continuation of valuable winter air service options for Orcas Island and the other San Juan Islands.

Sincerely,

KENMORE AIR HARBOR, INC.

Tim Brooks
Vice President, Flight Operations

From: Michael Rivkin [trvlnman@crowvalley.com]
Sent: Wednesday, October 05, 2005 1:32 PM
To: Martin Blackman
Subject: Rosario Master Plan

Greetings,

We wish to extend our join support for the Rosario Master Plan, currently in discussion. While it may not be without it's flaws, we do strongly feel that the alternative may present far greater negative impact to the long-range fiscal health, appeal and general livability of Orcas Island.

Please do not hesitate to contact us if we can be of any further assistance...

Thank you,

Jeffri Coleman - Michael Rivkin
CROW VALLEY POTTERY
2274 Orcas Road
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Mail by Sept 19!

COMMUNITY STATEMENT ON THE ROSARIO MASTERPLAN PROPOSAL AND DEIS

We do not support the Rosario Masterplan Proposal and DEIS as it stands. The developer's favored proposal, called "Active Alternative B" appears to be a massive real estate development rather than the up-grading of a deteriorating resort. It disperses high density housing developments throughout traditionally undeveloped, pristine forest and wetland areas that border Moran State Park and that are also next to rural neighborhoods. We find the active proposals set forth to be extremely detrimental in their environmental and neighborhood impacts, and we do not see why these proposals would in any way enhance our community. On the contrary, we believe the Rosario Proposal Masterplan will further burden our already burdened county infrastructure.

We think any further redevelopment of the Rosario Resort complex should be confined to the historically defined "core" area surrounding the Moran Mansion.
In addition we do not support developments which further deteriorate our shorelines and marine habitat, and we do not support variances to the county or state environmental codes on the issue of development close to shorelines which will affect the quality and health of our waters and wildlife.

We urge the county planners and commissioners to support the people's Vision Statement of San Juan County.

"...Our islands have exceptional natural beauty and healthy diverse ecosystems surrounded by pollution-free marine waters. The air is fresh and clean, the water quality is excellent, and the soil is uncontaminated. As careful stewards of these islands, we conserve resources, preserve open space, and take appropriate action to assure healthy land and marine environments. Native plants and animals of the islands thrive, and are identified, appreciated, and conserved."

Signatures	Name Printed	Address	County
David Parish	Dave PARISH	94 Wildwood Rd	San Juan
Katherine H Parish	Katherine H Parish	94 Wildwood Rd	San Juan
Becca Parish	BECCA PARISH	" " "	" "
Sam Parish	Sam Parish	" " "	" "
Rita McKinney	Rita McKinney	639 Buckhorn Rd.	" "
TINA BROWN	TINA BROWN	136 A PIONEER HILL RD.	" "

Community Statement On The Rosario Masterplan Proposal and DEIS cont.

Signatures	Name Printed	Address	County
	James A. Parker Jr	P.O. Box 226 Deer Harbor, WA 98243	San Juan
Letitia O. Hopper	Letitia O. Hopper	P.O. box 583 Eastsound, WA 98245	San Juan
Florence J Howard	Florence J Howard	23 Cemetery Rd Olga WA 98279	San Juan
Barbara M. Meyer	Barbara M. Meyer	491 Pt. Lawrence Rd Olga WA 98279	San Juan
	Zackarya Leck	1504 Pt Lawrence rd Olga, WA 98279	San Juan
Ann H. Sanchez	Ann H. Sanchez	445 Pt. Lawrence Rd Olga, WA 98279	San Juan
Barbara C. Urschel	Barbara C. Urschel	237 Lindsay Way Eastsound, WA 98245	San Juan
Bill Buchan			
Maureen Hannan	Maureen Hannan	68 Belle Lane Olga	San Juan
Susan Roland	Susan Roland	5575 Olga Rd. Olga	San Juan
	Jetty Weatherman	6928 Olga Rd Olga	SJ
Holly Larson	Holly Larson	284 Webb LN Eastsound	San Juan
Carol Anderson	Carol Anderson	91 Bonnie Brae Ln E/S	" "
Betty J. Bartleson	Betty J. Bartleson	226 Roche Harbor Rd. Olga 98279	San Juan
	Bethany Moore	PO Box 41 Olga 98279	San Juan
Oak Boesky	Oak Boesky	563 Cedar Hill Rd	E/S San Juan
Susan Watkin	Susan Watkin	P.O. Box 533 Eastsound 98245	San Juan
Melanie Davis	Melanie Davis	192 Sunset Av E/S	San Juan

Please mail by Sept 19!

COMMUNITY STATEMENT ON THE ROSARIO MASTERPLAN PROPOSAL AND DEIS

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Signatures	Name Printed	Address	County
Jane A. Briston	JANE A. BRISTON	P.O. Box 819 (mail) 301 Blue Heron Lane Eastsound, WA	San Juan
Fredrica Kundig	Fredrica Kundig	PO Box 247	Eastsound, WA 98245

Community Statement On The Rosario Masterplan Proposal and DEIS cont.

Signatures	Name Printed	Address	County
Louise G Smith	LOUISE G SMITH	PO BOX 754 EASTSOUND	SAN JUAN
Christine J. Buckley	Christine J. Buckley	PO Box 1231 Eastsound	San Juan

Please mail before Sept 14!

COMMUNITY STATEMENT ON THE ROSARIO MASTERPLAN PROPOSAL AND DEIS

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Signatures	Name Printed	Address	County
Andrea Hendrick	Andrea Hendrick	400 Cascade Way E.S	San Juan
Hugh L Hendrick	HUGH L. HENDRICK	400 CASCADE WAY E.S.	"
Ruth C Newman	RUTH C. NEWMAN	429 SHORE DR. E S	SAN JUAN
Ron Baer	Ron Baer	976 Deer Point Rd	" "
Robin L Duis	Robin L. Duis	P.O. Box 609 E/S 98245	San Juan
Betty Barats	Betty Barats	P.O Box 1214 E/S 98245	"

Community Statement On The Rosario Masterplan Proposal and DEIS cont.

Signatures	Name Printed	Address	County
[signature]	ARTHA KASS	PO Box 518 ES 98245	SJ
Margot Shaw	Margot Shaw	99 Melba Ln ES 98245	SJ
Louellen McCoy	Louellen McCoy	P.O. Box 10 Orcas 98280	SJ
[signature]	PHIL BURR	P.O. Box 263 Deer HBR.	
[signature]	J. THOMAS RITTER	PO BOX 262 EASTSOUND	SJC
Sarah McCulloch	Sarah McCulloch	PO Box 392 Orcas, WA	SJC
BARBARA G BEDELL	[signature]	P.O. Box 372 DEER HARBOR, WA	SJC
[signature]	DOUGLAS E. SCHLIEBUS	POB 495 EASTSOUND, WA	SJC
James S Bauck	James Shotter-Bauck	658 N Beach Rd	SJ
William D Hagen	WILLIAM D. HAGEN	P.O. BOX 1176 EASTSOUND	SJ
Deborah Sparks	DEBORAH SPARKS	PO Box 1357 Eastsound, WA 98245	
Heidi J. Lindberg	HEIDI J. LINDBERG	68 Mountain Heights Lane Eastsound, 98245	SJ
Margaret Kaplan	MARGARET KAPLAN	168 Palisades Dr Eastsound 98245	
Terry Johnson	TERRY JOHNSON	70 ANCHOR ROCK LN	ES.
Joe Floren	Joe Floren	67 Glenwood Inn Rd.	
Clyde Eagleton	Clyde Eagleton	331 Highlands	
Candace L. VerBrugghen	CANDACE L. VERBRUGGHEN	251 Highlands Dr.	ES
Carol Marcin		P.O Box 1316 ES. 136 Chinook Trail	
Tom Burg		P.O. Box 1316 E.S. 136 Chinook Trl.	
Betty C Sumrall		Eastsound	
[signature]	John Vinson	PO Box 1247 Eastsound	SJ

Community Statement On The Rosario Masterplan Proposal and DEIS cont.

Signatures	Name Printed	Address	County
Sheila Gagnin	SHEILA GAGNIN	POB 7 Deer Harbor	San Juan
[illegible]	Yvonne Ashenhurst	POB 9	
Elizabeth Waterman	ELIZABETH WATERMAN	Deer Harbor ORCAS	San Juan SAN JUAN
J M Crosby	JOAN M. CROSBY	POB 299 DEER HARBOR	SAN JUAN
[illegible]	GARY Wyngarden	1011 Palisades Eastsound	S.J.
C. Ascher	Catherine Ascher	1011 Palisades Dr. Eastsound WA	
Megan Harris	Megan Harris	Box 127 Deer Harbor	
Bob Harris	Robert Harris	" " " "	
Jackie Abell	Jackie Abell	118 Golf Estates Rd., E/S	
Annette Clark	Annette Clark	172 Lovers Ln, PO Box 524 Eastsound, WA	
Suze John Olsen		POB 1574 East. 98245	
Roger J. Crosby	Roger Crosby	PO Box 299 - Deer Harbor	
[illegible]	Robert Harris	Box 127 DEER HARBOR 98243	
Kate Wood	Kate Wood	PO Box 321, Deer Harbor 98243	
Kenneth Wood	KENNETH WOOD	P.O. BOX 321 DEER HARBOR WA 98243	
Lorraine Wallenberg	Lorraine Kanis-Wallenberg	PO Box 190 Deer Harbor 98243	
Louis Wallenberg	Louis WAllenberg	PO Box 190 Deer Harbor 98243	
Robert Herrup	Robert Herrup	PO BOX 100 ORCAS 98280	
E Chamberlayne	E.D.S. Chamberlayne	P.O. Box 473, Eastsound, WA 98245	
Carol S Sutton	Carol Sutton	PO Box Eastsound, WA. 9824[illegible]	
Randi Sulkin	Randi Sulkin	P.O. BOX #112 Eastsound WA 98245	

Martin Blackman

From: Charles Crawford [chuckcrawford@themaildepot.us]
Sent: Wednesday, October 05, 2005 2:05 PM
To: Martin Blackman
Subject: Rosario Master Plan

---------- Original Message ----------
Subject: Rosario Master Plan
From: "Charles Crawford" <chuckcrawford@themaildepot.us>
Date: Wed, October 5, 2005 12:14 pm
To: martinb@co.san.juan.wa.us
Cc: carolynamorgan@aol.com

We are unable to support the Rosario Master Plan for the following reasons:

1- There has been no mention of the probable increase in road traffic on Ocean Mist that further development in the area would bring about.
Currently the Rosario staff use Ocean Mist as a short cut to get to Rosario Road. The "road" is more like a driveway rather than a street, is very narrow, poorly maintained and will only allow one vehicle at a time to pass through. Increased development in that area would only beg for more street traffic on a road that could not even handle a fire engine now in case of an emergency.

2- As small as the marina is now, the exhaust fumes from the larger boats that run their engines for hours on end and the sea planes that come and go frequently inundate our homes with noxious fumes such that we must close the ocean front windows. Further expansion of the marina would only exacerbate this condition.

3- The noise from parties on the lawn still continue past the deadline hours that were promised us. I know there is a certain romance and mystic about a "lawn" party, but the resort has several indoor facilities that could mediate the amplified music and speech that flows up to our homes, sometimes as late as midnight. Expansion would mean more people, more parties and more noise for the residents.

Charles Crawford, 150 Ocean Mist Way

Carolyn Morgan, 1239 Rosario Road

Martin Blackman

From: j. deuel [jdeuel@roboticsnw.com]
Sent: Friday, September 23, 2005 12:45 PM
To: Martin Blackman
Subject: Rosario Resort's DEIS

Martin Blackman
San Juan County Planning Department
P.O. Box 947
Friday Harbor, WA 98250

Dear Mr. Blackman:

I just finish reading the DEIS and the attached comments, and found it very disturbing. There will be serious, long-range consequences for whatever decision that is made in relation to this property.

I have had the pleasure of sharing the beautiful heritage of Rosario Resort with guests, off and on since 1996. I have work both in the accounting department and at the front desk and have had the opportunity to see this resort from both sides. There have been three owners and a number of management companies during my tenure with only one period of real renovation. I have watched the rooms deteriorate to a point of embarrassment. Selling off land seems to have been the only way to continue operations. Let's be honest, the only reason to invest in a resort property is to make money, and if one cannot make a reasonable rate of return, they sell and cut their losses or find another use for that asset. In my opinion, we are at the brink of losing a wonderful treasure. The Do Nothing Option ("No Action Alternative") will very likely destroy the resort as we know it, and the public will very likely lose access to a wonderful piece of island history forever.

One of the issues being addressed is the noise issue. People who buy property in the resort community should consider that noise is a given. This argument is like someone buying near an operating airport and then complaining about airplane noise, or someone buying a home on a golf course fairway and the complaining about the golf balls that hit their house. No one forced them to buy that property and they should have considered that BEFORE they bought the property. As for Mr. Izakson's comments, if noise were an issue with his first rental home in the resort community, why would he have even considered moving into a second rental home in the resort community? Fool him once -shame on us, fool him twice – shame on him. Other people who have rented that same house have not experienced that problem. How could it have changed so dramatically?

One must remember the Resort is not just a piece of real estate, it is also history and people. There are about 50,000 visitors a year that come to enjoy the resort and Orcas Island. We have guests that return to celebrate their anniversaries that were married here many years ago, as well as those who just got married this weekend. (Rosario was awarded Seattle Bride Magazine's "Northwest Destination Wedding Site" for 2005). Guests are awed by the wonder of this location and if you were to spend very much time here, you would understand why. Many return over and over for another great vacation or getaway. Travelers from around the world come to see this beautiful mansion, listen to the 26-rank pipe organ, enjoy the historical presentation, and indulge in the renowned Friday Seafood Buffet. This place is so much more.

In my opinion, the "No Action Alternative" is not even an option. The buildings close to the Mansion have been left to deteriate over the last 5-8 years, and the only way to bring them to a reasonable condition is to totally replace them. The same is to be said about the restaurant and kitchen. The hillside rooms, however, could be renovated and brought up once again to 3 to 4 star quality rooms. The problem with this option is that it could not justify this kind of expenditure due to the limited return on investment. The only way it could work would be to find that right investor, who loves this resort, would reinvest dollars back into the resort and look to the future for the long term gain. I don't think that is going to happen. The more likely scenario would be to just subdivide and sell it off. This option would make a very few rich people very happy. Can't you

envision one extremely lucky person replacing the Skagit building with a beautiful home that hangs over that shoreline? This option will eventually destroy the resort and have a devastating impact on both Orcas Island's and
San Juan County's economies.

Alternative A should not even be considered as an option. The return on investment is not even close to being justifiable.

That currently leaves us with Alternative B. Personally, I believe it has some undesirable aspects – BUT it appears that it is the only game in town if we want to continue to share this extraordinary piece of history. There could be improvements on this plan but any change would need to be addressed in light of all the financial impacts they would have on the over all plan.

One item that is not being address in the DEIS, that really needs to be, is how this plan will impact the economies for both Orcas Island and San Juan County. During the 1990's my wife and I operated both a service business and a retail store in Eastsound, and it was true that "As Rosario goes, so goes the economy of Eastsound". If Rosario's doors were to be closed, it would result in the loss of the 50,000+ tourists per year, and the loss of more than 75 year-around jobs. Just consider the impact your decision is going to have on Orcas Island's future. There would not be the need for many of the stores and shops in town and very possibly some would be forced out of business. We definitely would not need eight nice restaurants in town. PLEASE consider all the financial ripple effects your decision will have on the Orcas Island economy and the resulting tax revenue impact on San Juan County.

This place is so much more than just a piece of real estate that needs to be "planned". It is Washington State history that needs to be preserved.

Sincerely,

James A. Deuel
350 Raccoon Point Rd.
Eastsound, WA 98250

376-5337

Martin Blackman

From: Sarah H. Geiser [jacknjill@rockisland.com]
Sent: Friday, September 23, 2005 1:33 PM
To: Martin Blackman
Subject: RMP AND DEIS

Dear Mr. Blackman,

As a former Manager of Rosario Resort, I am writing to express my opinion on the need to incorporate The Hilltop area into the boundaries of the Rosario Master Plan.

Up until a few years ago, Rosario owners owned the properties on both sides of Rosario Road adjacent to Horseshoe Highway and The Hilltop area was only separated by this highway. The Hilltop area has been used for employee housing for many many years and is an ideal location for this much needed service of the resort. The location of the housing is well back off the highway and is serviced by both the Rosario water and sewer systems. Also, Rosario is in a position to provide shuttle service for employees for this short run to the resort, eliminating the need for increased employee parking in the core area. Walking to work is also a possibility, albeit it is all up hill on the way home.

It is absolutely essential the resort is able to provide housing for its seasonal employees, as well as a number of full-time employees in order to provide the quality of service to guests in an ever increasing competitive market in the hospitality industry. The planned expansion of Rosario will increase the need for employees in all aspects of service. It is a well known fact, you can't operate a restaurant without dishwashers and no matter how luxurious your rooms, you still need an adequate housekeeping department to service all areas. These are the employees less likely to be able to obtain housing on their own. During my tenure at the resort, employee housing was an ever increasing challenge, and with the condition of the present housing market on Orcas Island, it has become a necessary requirement of the resort.

I strongly believe the inclusion of The Hilltop area in RMP is not only logical but mandatory to the future well being of Rosario, and if need be, should be substituted for the Hillside area. This area will not enhance the resort operations as defined in Chapter 1 of the DEIS.

Furthermore, the Utility Tract should be reserved for the exclusive use of the infrastructure of the water and sewer systems. This is certainly not the place for employee housing in view of the fact an ideal site, The Hilltop, is already in existence.

Sincerely,

Sarah H. Geiser
151 Geiser's Way
P O Box 418
Eastsound, WA 98245-0418
360-376-2336

Martin Blackman

From: Hansen [hansen@rosarioresort.com]
Sent: Monday, October 03, 2005 9:05 PM
To: Martin Blackman
Subject: Rosario Master Plan

Martin Blackman

Dear Mr. Blackman,

As a seriously interested party I am writing to offer my comments on the Rosario Master Plan and encourage you to assist in creating and endorsing a workable plan for Rosario Resort, the surrounding community and Orcas Island.

By way of introduction, my home is one of the original Moran Twin Houses in the heart of the area impacted by the Master Plan, additionally, I am an employee of Rosario having worked here on and off since 1964. I am a past president of the Rosario Property owners association, having first served on that board in 1975, and currently serving on the board as Rosario Liaison. I have 22 years in full time residence at Rosario, starting in 1972 for 6 years and returning in 1990 to present. I have spent numerous summers here prior to that. As a member of the Orcas Island community I am past Vice President of the Orcas Island Chamber of Commerce and participate in various other community activities including church and school programs.

osario Resort has been an important asset to the Orcas Island community for over 45 years providing an employment base, with over 200 currently employed and a payroll exceeding $3,000,000.00 per year. Rosario also brings visitors to the island who contribute greatly to the local business community. I have personally had comments from many local business owners on the positive impact Rosario's efforts to bring business to the island has had on their businesses, especially in the slower winter months. The resort founder, Gil Geiser, who was also a founding member of the Orcas Island Chamber of Commerce , focused his philanthropic goals heavily on local organizations . Rosario has continued this tradition through school sponsored teams, donations of facility use, and functions in support of charitable activities. Sometimes this support is financial or gifted trade but more often through generous discounts or gratis use of facilities such as the Orcas Island Community Foundation's annual luncheons, the High School Senior Prom, Rosario Property Owner's meetings, etc.

While it is true that many people come to Orcas for privacy and isolated settings, not all us seek this solitude. Every person living in the Rosario community today came here after the resort was a presence and many chose this location largely because of it's proximity to the resort facility and services. The level of activity in and around the resort has gone up and down over the past 40 years but it has continued to be a resort center of activity. Those that say they do not want Rosario to change are very unrealistic and have a limited perspective on the history of Rosario. It has continually changed, beginning before Robert Moran's purchase and includes the changes brought about by those moving to and building here in the community.

I believe that the proposed plan allows for reasonable expansion but not unlimited growth and will nsure that the resort will have the opportunity to continue to serve the community and visitors without permitting extreme density. I urge you to support the plan for the benefit of Rosario, our community and Orcas Island.

Thank you for your consideration and time.

Sincerely,

Dick Hansen

Dick Hansen

Manager of Information Technology

Rosario Resort

1400 Rosario Road

Eastsound, Washington 98245

360 376-2228 ext.399

360 376-2289 Fax

hansen@rosarioresort.com

Rosario Public Hearing, Oct 6th 2005

This is a comment on the Rosario proposal to develop the "Upper Basin". It is not a statement that has anything to do with my fondness for the Historical Moran Mansion or the friends who work there.

Twenty-one houses of fractionalized transient ownership would be devastating for the fragile piece of forest land that is called the "Upper Basin".

The "Upper Basin" is the steep, narrow ravine comprised of approximately twelve acres of forest land that goes from the Cascade Lake dam and Lagoon down to Rosario Bay. Bowman Creek runs down the middle of this ravine. The "Upper Basin" is virtually the last piece of undeveloped land or open space on this side of the park that connects the forested Moran State parklands and Cascade Lake to the seashore. Thus it is used as the last undisturbed wildlife corridor by all the animals that travel, nest, and forage in both fresh and salt water areas. I have personally walked the Upper Basin and the land is literally criss-crossed with wildlife trails that eventually converge on Bowman Creek up near the dam. The Basin is a flyway for ducks, geese, Blue Heron, Bald eagles, owls and hawks that travel between the shores of the saltwater and the lake in the morning and evening. Currently there are four otters that are daily using one of the trails to access the lake and feast on trout. In the only small clearing with an ancient maple tree there is evidence of a large sheltered sleeping nest used by a herd of our neighborhood deer. The area at present is abundant with wildlife. Because of the proximity to the park and the fact that this is the last undisturbed wildlife corridor on this side of the island that connects shore, lake and mountain it is essential that it be preserved.

In the Rosario DEIS, the artist's rendering of the proposed "Upper Basin housing development shows two clusters of houses with ample space between the houses; however, in reality these houses would have to be tightly squeezed together on the upper fraction of the property in order to all fit in. Building twenty-one three to five bedroom vacation houses with two car garages and adequate road systems on this steep, forested acreage would be utterly miserable in its impact - most of all, on its impact on the wildlife and adjoining parklands, especially the beautiful and fragile lagoon where all the wildlife is headed. The time of construction and later seasonal use of these homes and roadways would always be during the peak nesting season for wildlife. The construction noise, significant mature tree removal and pollution run-off during and after construction would - it has been admitted in the DEIS - kill the "Upper Basin" as a wildlife corridor, and would also undoubtedly have serious long-term negative pollution and storm run-off effects on both the land below and ultimately, the marine waters below. As well, the density would be completely incompatible with the existing rural neighborhoods to either side of the basin. Any high density development should absolutely be located down in the core resort area where high density impact has already occurred and can and should be carefully monitored.

In sum, it is time for us in San Juan County to require developers to prove with real, substantive information that their proposed developments are compatible and environmentally friendly, to some measure self sufficient, and that their construction will honestly not further burden and deteriorate surrounding areas or existing neighborhoods nor overload and otherwise tax county infrastructure.
Santa Barbara was wise enough to put a building moratorium in place thirty years ago which is still in place. They treasured and thereby saved their character. It is past time to take an equally bold stand – to stop bowing to all the pressures of developers. In my opinion Roche Harbor has now forever lost its wonderful charm, and Poet's Cove has turned the once funky and interesting Bedwell Harbour into a nouveau faux plastic paradise. Twenty-one houses of fractionalized, transient ownership in the Upper Basin would be a completely inappropriate use of this beautiful, and fragile forested land.
Respectfully yours,

Lesley Ann Liddle
Eastsound, Washington

10/6/05

Martin Blackman, Senior Planner
San Juan County Community Development and Planning Department
P.O. Box 147
Friday Harbor, WA 98250

Dear Martin,

I have been associated with Rosario Resort & Spa in one capacity or another for the past 25 years. I am Rosario's historian, curator and author of "Rosario Yesterdays." I am currently contracted with Rosario Resort & Spa for marketing, public relations, and entertaining services. I am chairman of the Rosario Master Plan Advisory Committee and my wife and I have been property owners in the Rosario neighborhood for over 20 years.

I'd like to begin by offering this quote from an editorial in a Rosario Property Owners Association (RPOA) newsletter made by my neighbor Hugh Hendrick:

"My observation is that Mike Usen of EDAW who prepared the plan for the owners of Rosario made every practical effort to involve the Rosario Community, Island environmental organizations, and interested islanders to obtain maximum support for the specifics of this conceptual master plan. He held two well publicized open community meetings and three Advisory Committee meetings (open to everyone) at the Discovery House. He sought out individuals and groups who have an interest in the future of Rosario, and he welcomed all Rosario residents to comment on and recommend specific changes to each iteration of the Plan. He met with the entire Board of the RPOA and further discussed that plan with a number of the Board officers and directors in phone conversations. I believe his efforts in involving the Rosario Community and in making Plan adjustments to legitimate concerns were truly exceptional."

I can't agree more. I personally believe Olympus Real Estate and Mike Usen deserve a round of applause for their commitment to obtaining public input and creating an excellent Rosario Master Plan. I would also like to acknowledge the members of the Rosario Master Plan Advisory Committee for their time and efforts.

While I have chaired the Rosario Master Plan Advisory Committee, numerous changes were made to the plan in direct response to Advisory Committee and community suggestions. Having worked closely with Mike, the resort's owners, and the Rosario Advisory Committee, I believe everyone has worked hard to develop a sensible plan that balances benefits to the community, to the neighbors, to the guests, to the environment, to the historical legacy, and to the owner.

Rosario is an island institution that needs to be brought up to 21st century standards. Rosario is in the condition it is today because successive owners have not been able to finance renovations, new facilities, or to commit to long-term planning. There has never been a Master Plan. I truly believe everyone wants Rosario to succeed, to achieve long-term viability with quality environmental and historical preservation, but the real question becomes . . . at what cost?

The mansion has never been renovated in its 96-year history and is long overdue. I understand that the planning department is not looking at the economic side of this plan in the Environmental Impact Statement, but if Rosario's owners are to preserve this important historic feature, the extremely high associated costs will have to be paid for by resort derived earnings in the form of cottage and condo sales. Also, the numerous expensive mitigation measures and other management practices as documented in the EIS will have to be paid for with these earnings, but that is the cost of environmentally responsible development.

I applaud Gil Geiser's entrepreneurial spirit in turning Rosario into a resort, but we are in a new era. New resorts around the country are being designed as a mix of hotel, fractional, and whole owned accommodations. Critics of the plan are leading you to believe this is a massive real estate development of "private homes." This is simply not true. ANYONE staying in these units, whether they own a fraction of them or not, are RESORT guests with access to resort amenities. Even if you go as far as declaring the whole owned units as "residences," Section 2.3.b.1.e of the San Juan County Comprehensive Plan states Master Planned Resorts "may contain other *residential* uses and commercial activities within their boundaries, but only if these are integrated into and support the on-site recreation nature of the resort." Most of the condos on the hillside have been privately owned for years, but I have never heard them referred to as "residences."

Neighbors comment that the resort is developing into their residential neighborhoods. Based on 45 years of selling off real estate, the reality is that residential neighborhoods have been encroaching into the resort area. People are concerned that private "residences" are being built within the shoreline setback. In actuality, the entire shoreline is restored, a public pedestrian path buffers the entire shore with access from one end of the property to the other, and integrated resort accommodations are built further back from the shore than structures they are replacing, such as the mansion pool, the 1300 building, the Cascade Bay Grill, and the Discovery House.

Having been associated with Rosario for many years, I have no doubt that change will happen. Many were shocked when the Medina Foundation put

Turtleback Mountain on the market, or Camp Norwester sold to Paul Allen, which he turned into private secured compound. I am personally not concerned with who owns Rosario today or tomorrow. My vision is that Moran's legacy is restored and resort operations are renewed for the enjoyment of islanders and visitors for Rosario's next 100 years. Olympus Real Estate has been very patient in coming up with solutions to achieve this goal. It is now time for the county to approve years of community effort on this master plan that gives us a financial model with which to preserve the irreplaceable Rosario legacy and protect its future. The cost of not doing so is too high.

Thank you,

Christopher Peacock
401 Shore Drive
P.O. Box 563
Eastsound, WA 98245

Martin Blackman

From: Patricia Pomeroy [ppomeroy@rockisland.com]
Sent: Thursday, October 06, 2005 10:35 AM
To: Martin Blackman
Subject: Rosario Master Plan

I feel that it would be disastrous if the planning commission made any other recommendation to the County Commissioners than one in support of Action Alternative B, which would allow the Master Plan to proceed as written.

It would be counter-productive and even disastrous from an economic standpoint to those on Orcas Island and throughout the county.

Although Peterson Economics did an economic study, I seriously doubt it encompassed what the ramifications to Orcas Island and the entire county would be if we were to lose Rosario Resort.

Patricia Pomeroy
Owner/Broker
Coldwell Banker-Orcas Island
Phone: 360-376-2114
Toll Free: 1-800-552-7072
Fax : 360-376-7230
email: ppomeroy@cb-orcasisland.com
web site: www.cb-orcasisland.com

Martin Blackman

From: John and Fountiene Prince [jfprince@interisland.net]
Sent: Sunday, September 11, 2005 4:57 PM
To: Martin Blackman
Cc: pureandsimple@rockisland.com; musen@segrp.com
Subject: Comments on Rosario Master Plan

To: Martin Blackman, Senior Planner, San Juan County

We reside at 378 Shore Drive and have owned our home since 1994. One of the attractions for our locating in this area was the Rosario Resort. We use the facilities on a regular basis and enjoy dining in the restaurants. We often take guests to hear evening programs at the resort. We have made many friends through the activities sponsored by the Rosario Homeowners Association. We have watched the resort "struggle" to survive as a profit-making business and have always hoped that owners who recognized the potential and the limitations of a resort located on Orcas would eventually formulate a plan that would modernize the facility and keep it the special place it is to so many island residents.

We have attended all informational meetings and have reviewed the material on the three alternatives to develop the resort. At the August 29 meeting, we were initially positively impressed with the plan to have a "show of hands" in support of each speaker as comments were made at the microphone. As the meeting progressed, though, we watched people looking around to see how friends and neighbors were responding with their "show of hands." It appeared to us that the members of the planning commission were not getting an accurate view of people's opinions as homeowners present seemed to be following the lead of how their friends were responding perhaps more than they were expressing their own views.

It seem obvious that none of us want to see wildlife endangered by the improvements made at Rosario. None of us want to see our neighbors and friends inundated with traffic on the roads on which their homes are located. All of us would like to see those who need water be given the rights they have expected and deserve.

There is definitely a need to upgrade the facilities at the Rosario Resort and to make it a profitable enterprise. After listening, reading, discussing and giving much thought to the options as they have been presented, we would like to express our support of "Plan B" as we believe it will accomplish the most needed progress with hopefully the least negative outcome for those concerns expressed by other homeowners.

Please feel free to contact us via e-mail at jfprince@interisland.net or by phone at 360-376-2098.

Sincerely

John and Fountiene Prince

Comment Sheet Planning Commission Public Workshop August 29, 2005
Rosario Master Plan DEIS

We have a great concern about what will happen to the Rosario Resort property if the Master Plan is not approved. Should the owners shut down the resort, it is possible that all the concerns expressed regarding the results of the implemented Master Plan will come to pass with even more negative impact.

Please take into consideration the concerns expressed and allow the owners to implement a controlled upgrading and expansion of the property with any modifications that can address the issues raised.

Contact information:
Name John & Faun Liene Prince
Address 378 Shore Dr., Eastsound (PO Box 433)
Phone 360-376-2098 e-mail jfprince@interisland.net
May we call you if we have questions about your comments? yes ☒ no ☐

How to contact us:
San Juan County Community Development & Planning, 135 Rhone St., Friday Harbor, WA 98250, (360) 370-7581 martinb@co.san-juan.wa.us

Rosario Resort Environmental Impact Statement/ Master Plan Support

Whereas the Rosario Resort ownership, a formal community advisory group, master planning experts in numerous fields, San Juan County Community Development and Planning staff, and the San Juan Islands community at large have participated over a five-year period in developing a resort master plan...

Whereas this planning process was guided by four goals: (1) re-establish Rosario as the Northwest's pre-eminent island retreat; (2) preserve, restore, and enhance what is most unique and cherished about Rosario, especially the works of Robert Moran; (3) protect and enhance the Resort's natural environment and context; (4) maximize the Resort's long-term operational viability...

Whereas the preferred Action Alternative B concept achieves the four goals and outlines management practices and mitigation measures that generally maintain or improve the environmental conditions in the area...

Whereas we also look forward to numerous positive socioeconomic and cultural impacts for the immediate and greater San Juan Islands community from implementation of the Action Alternative B...

We, the undersigned, support timely official approval of the Environmental Impact Statement and then the Land Use designations outlined in Action Alternative B. We need to begin the work of preserving the unique and priceless Rosario legacy and protecting its future for the benefit of generations to come:

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/30/05	Audrey L. Stupke	Audrey L Stupke	1234 Palisades Drive PO Box 1334, Eastsound, WA 98245
9/30/05	Dean F. Stupke	Dean F Stupke	1234 Palisades Drive PO Box 1334, Eastsound, WA 98245
9/30/05	Renee Squalt	Renee Squalt	52 Hemlock St Eastsound WA 98245
9-30-05	Sharron Harpham	SHARRON HARPHAM	58 Marina Heights, E/S 98245
9/30	Michael S. Rivkin	Michael S Rivkin	2274 Orcas Road E/S 98245
9/30	Jeffrey M. Coleman	JEFFREY M. Coleman	2274 Orcas Road E/S 98245
9/30	Jean Wellington	JEAN WELLINGTON	PO BOX 464 EASTSOUND, WA 98245
10/1	J. Reinholt	JORG REINHOLT	28 CLIFFHOUSE CT
10/1/05	Inger-Lise Reinholt	INGER-LISE REINHOLT	28 CLIFFORD CT EASTSOUND, WA 98245
10/2/05	Margaret Kaplan	Margaret Kaplan	158 Palisades Dr Eastsound WA
10/2/05	Wm. Harpham	WILLIAM HARPHAM	58 MARINA HEIGHTS LN EASTSOUND, WA

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/29/05	Matt Haire	Matt Haire	PO Box 1271 Eastsound, WA 9824
9-29-05	Phillip S. Bose	Phillip S. Bose	PO Box 44, Olga, WA 98279
9/29/05		Casey Wescam	17041
9/29/05		JAY KIMBALL	836 HIDDEN RIDGE TRAIL EASTSOUND, WA 98245
10/1/05	Carol Jo Enge	CAROL JO ENGE	22 First Street Olga WA 98279
10/1/05		Suzanne Boje	2211 RACCOON PT. RD EASTSOUND WA 98245
10/3/05	Catherine Straus	Catherine straus	P.O. Box 242 Deer Harbor, WA 98243
10/6/05		Suzanne Moe-Hunes	PO 11666 Eastsound 98245

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/30/05	Jo Walker	Jo Walker	140 Snowberry Ln, Eastsnd 98245
10/1/05	Kay Whiting	KAY WHITING	113 CLIFF house ct.
10/4/05	Susan Grace	SUSAN GRACE	79 Autumn Lane Eastsnd
10/4/05	Broderick Stevens	Broderick Stevens	79 Autumn Lane "
10/5/05	Richard Boucher	Rick Boucher	98 DEYE LANE EASTSOUND, WA 98245
10/05/05	Dave Douglass	David Douglass	531 Rosario Rd Eastsound WA 98245-
10/5/05	Chris Viertholer	Chris Viertholer	42 Alder St, Eastsound (POBox 421,

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9-29-05	C.S. Spaulding	CLINT SPAULDING	199 GIESER'S WAY, EASTSOUND 98245
9-29-05	Grace Tuck	GRACE TUCK	PO BOX 764 EASTSOUND WA 98245
9-29-05	Jessica Wilson	Jessica Wilson	PO Box 1822 Eastsound
9/29/05	Jeannine Hastings	Jeanine Hastings	PO Box 1801 Eastsound, 98245
9-29-05	W Scott Jennings	W Scott Jennings	154 Seaview St #C Eastsound, WA, 98245
9/29/05	[illegible]	Ahmet Gulsever	1400 Rosario Rd. 98245 EastSound WA
9/29/05	Mardy Burnett	Mardy Burnett	1400 Rosario RD 98245 Eastsound WA
10/1/05	Lynn Wood	LYNN WOOD	1021 LK MENDO DR UKIAH CA 95482
10/1/05	Shannon Wood	Shannon Wood	1301 Yakima Ave S Seattle, WA 98144
10/1/05	[illegible]	Chad Humphrey	"
10/1/05	Kenneth Wood	KENNETH WOOD	1021 LAKE MENDOCINO DR UKIAH CA 95482
10/1/05	William R. Patterson	William R. Patterson	PO BOX 1402 Eastsound
10/1/05	Wade Campbell	WADE CAMPBELL	PO BOX 1387 EASTSOUND

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
09/30	[signature]	ADAM S. FARISH	PoBox 370 98245
10/1	Julie Segault	Julie Segault	258 Lovers Lane Eastsound, Wa. 98245
10/1	Brett Mills	Brett Mills	266 Buri Hall Olga, WA 98279
10/1	I. Steward	I. STEWARD	BOX 625 ES, 98245
10/1	R. Hr	RACHAEL HENDERSON	P.O BOX 14 DEER HARBOR, WA 98243
10/1	D. Drake	Dan Drake	PO BOX 147 Eastsound WA 98245
10/1	B Palmere	Billie Palmere	3319 Pleasant Rd. Easton NY 13334
10/1	[signature]	Corey Austin	1255 SW Station Circle Port Orchard Way 98367
10/1	Debra Binkson	Debra Binkson	1400 Rosario Road
10/1	John Mottola	John Mottola	P.O. Box 72 Port Townsend, WA 98368
10/1	Joyce R Mottola	Joyce Mottola	PO Box 72 Port Townsend WA 98368
10/1	[signature]	GILDA TRAYNOR	101 TOMIHI DR EASTSOUND WA 98245
10/1	Julian B Gonzales	Julian B Gonzales	855 Ocean Mist Way

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
10/1/05	[illegible]	[illegible]	1031 NE 94th St. Seattle WA 98115
10/1/05	[illegible]	Jesse Punnoni	Seattle, WA
10/1/05	Tony Hagemeier	Tony Hagemeier	154 Seaview St. Eastsound WA.

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9.30.05	Lois E. Baney	LOIS E. Baney	271 Shore Drive
9.30.05	Al & Linda Petrauskas	AL & LINDA PETRAUSKAS	16 Bingham Lane
10-3-05	Victor Bracke	VICTOR BRACKE	167 SHORE DR.
10-4-05	John Prince	JOHN PRINCE	378 SHORE DR.
10-4-05	Fountiere Prince	FOUNTIERE PRINCE	378 Shore Dr.
10-4-05	Jackie + Dick Rudd	JACKIE RUDD	597 SHORE DRIVE
10-4-05	Carol J. Blaney Tully	CAROL TULLY	509 CASCADE WAY

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/30/05	Norma J Harlacher	Norma Jo Harlacher	P.O. Box 1092, Eastsound 98245 1549 Rosario Rd.
9/30/05	E K Harlacher	Ervin Harlacher	" "
9/30/05	Kurt W Lindsay	KURT LINDSAY	1561 ROSARIO RD " "
9-30-2005	Carol Whitbeck	CAROL WHITBECK	P.O. BOX 108 - EASTSOUND, WA. 98245
10/02/05	Barbara Evans	BARBARA EVANS	351 LEENHARD LN E/S 98245
10/02/05	DAVID EVANS	DAVID EVANS	351 LEENHARD
10/02/05		A. LISA LINDSAY	1561 ROSARIO RD.
10/02/05	Janet Bell	JANET BELL	1325 ROSARIO RD.
10/02/05	James Bell	JAMES BELL	1325 ROSARIO ROAD
10/04/05	William Felber	William Felber	1545 Rosario Rd.
10/04/05	June Felber	June Felber	1545 Rosario Rd.
10/04/05	Mitch Brunner	Mitch Brunner	(P.O. 603 Eastsound #1 Firehouse Lane PO 383 EASTSOUND, WA 98245
10/04/05		STUART BRAGAR	
10/04/05		Kathy VAndenberg	P.O. Box 237 Olga 98279
10/5/05		JoAnn Jacobsen	

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/30		CHRISTOPHER PEACOCK	401 SHORE DR. P/O Box 563 EASTSOUND, WA
9/30		Erin McCarthy	PO Box 824 Eastsound, WA
9/30/05		David E. Mowrey	P.O. 394 Orcas WA 98280
10/1/2005		WALT TORBET	424 CASCADE WAY, ES
10/1/2005		Richard Wilson	P.O Box 1108 E.S. 98245
10/1/2005		JUZIE DOUGLASS	P.O. BOX 506, E/S, WA 98245
10/4/2005		Maureen Burlew	P.O. Box 417 Eastsound WA 98245
10/5/05		JoAnn Jacobs	2318 Obstruction Pa
10/5/05		Steven K Jacobs	Olga, WA 98279

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9-30-05	Mary E. Gardner	MARY E. GARDNER	PO Box 1094 EASTSOUND, WA 98245
9-30-05	Dave Gardner	DAVE GARDNER	P.O. BOX 1094 Eastsound, WA 98245
10-1-05	Cheryl Jackson	CHERYL JACKSON	165 TIMBER LANE ESP.
10-1-05	Robert Beanchell	ROBERT BEANCHELL	P O Box 148 ORCAS 98280 WA
10-1-05	Sharon Beanchell	SHARON BEARCHELL	PO Box 148 98280
10-1-05	Tom Tillman	Tom Tillman	131 Bond Mill 98279
10-1-05	Jeremy Klug	JEREMY KLUG	49 Ocean Mistway Eastsound wa. 98245
10-1-05	Colin Martin	COLIN MARTIN	Box 1509 - EASTSOUND, 98245
10-1-05	Margaret Connor	MARGARET CONNOR	PO Box 148 Deer Harbor WA 98243
10-1-05	Ebba Brophy	EBBA BROPHY	611 Channel Rd 98245
10-2-05	Louis Middleton	LOUIS MIDDLETON	151 CASCADE WAY 98245
10-2-05	Mary L Middleton	MARY MIDDLETON	" " " "
10-4-05	Lea Anna Stewart	Lea Anna Stewart	372 Cascade Way 98245

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9.30.05	[signature]	Darlene Pohl	PO B 345 ES, WA 98245
9/30	[signature]	Jaylin Pearce	POB 563 ES 98245
9/30	[signature]	GREGG SASAL	Rt 1 Box 305
9/30	[signature]	Scott Harris	214 Madrona St Eastsound
10/1	[signature]	Lee Wiscomb	P.O. Box 174, Eastsound, Wa 98245
10/1	[signature]	Dianna Hofmann	1042 Obstruction Olga. 98279
10/1	[signature]	SCOTT LANCASTER	477 MC NALLEE LN EASTSOUND 98245
10/1	[signature]	CON RUSSELL	PO BOX 878 ES 98245
10/1	[signature]	Heather Stansbury	32 Crowe Str. ES 98245
10/1	[signature]	Keri Stone	172 Pinepoint Lane Olga WA 98279
10/1	[signature]	Brad Harlow	95 Timber Ln E/S 9824[illegible]
10/1	[signature]	GENE NERY	84 BONNIE BRAE LANE E/S 98[illegible]
10/1	[signature]	Darlene Murphy	116 IVY eastsound

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/30/'05	Sharon H. Inman	Sharon H. Inman	PO Box 72 95 Pioneer Meadow Lane
9-30-05		Bill Holmes	P.O Box 1407 Olga, WA 98279
9-30.05		DAVID FLEKKIMANN	EASTSOUND, WA 98245
9-30-05		Deborah Hansen	39 TALL TREES TRAIL E/S, WA. 98245 → 98 Twin House Ln.
9-30-05		Dick Hansen	98 Twin House Lane, Eastsound
9/30/05	~~PATRICK BRENNEN~~	PATRICK BRENNEN	299 GEISES WAY
9/30/05		Gail Brennen	299 Geises Way
9/30/05		ROBERT MATHESON	PO Box 398 98280
9/30/05		ANNA ROSENBERG	PO 156 Eastsound 98245
9/30/05		Carolen Richey	Box 661 Eastsound
9/30/05		MICHAEL DONAGHUE	POB 156, 98245 98245
10/1/05		Cindy Elliott	PO Box 1265 Eastsound
10/1/05		THERESA A. NIGRETTO	9 SEAVIEW ST. E/S WA. 98245
10/1/05		DAN KIMPLE	P.O Box 744 E/S 98245
10/1/05		ANDY NIGRETTO	2366 ORCAS H

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
10/1/05	Lori Pollard Oakes	Lori Pollard Oakes	PO Box 1106 Eastsound
10/1/05	Coleen O'Brien	Coleen O'Brien	Box 7 Olga
10/1/05	Marny Gaylord	Marny Gaylord	PO Box 1684
10/1/05	Erick Crowe	Erick Crowe	30 Sunset Ave E.S.
10/1/05	Lake Evans	LAKE EVANS	1006 Palisades Dr Eastsound
10/1/05	Lisa Russell	LISA RUSSELL	48 SUNSET AVE EASTSOUND
10/1/05	Bryan Berge	Bryan Berge	525 president Channel Lane
10/1/05	John Fleischer	John Fleischer	62 Grove Str, Eastsound WA) 590 Nordstrom Ln Eastsound
10/1/05	Karen Harlow	Karen Harlow	95 Timber Ln E/S
10/1/05	Michael R Boetger	MICHAEL R BOETGER	12 SPRUCE ST E/S
10/1/05	Michael Hurley	MICHAEL HURLEY	P.O. Box 1865 E/S
10/1/05	Michael Hurley	Michael Hurley	PO BOX 7 E-S

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9/29/05		Andrew Fine	52 Rossel Ln, Eastsound
9/29/05		KIRK W TROTTMAN	41 ALDER ST EASTSOUND.
9-29-05		HEIDI EYLER	553 BUCKHORN RD EASTSOUND
9-29-05		CATHERINE TOOLE	23 Langell Lane EASTSound 98245
9/29/05		Robert L Hendricks	306 Orcas Hill Rd Orcas 98280
9/29/05		Richard Roby	207 Pickett's Lane Orcas 98245
9/29/05		PAUL COX	199 GEISER'S WAY, ORCAS 98245
9/29/05		Elisa Wiscomb	PO Box 1735, Eastsound 98245
9/29/05		James Ricciardella	PO Box 1004 EastSound WA 98245
9/30/05		Dennis Gonzales	Ocean Mist Way East Sound
9/30/05		Camille Hickey	Orcas/Olga Road Eastsound Eastsound. WA
10/1/05		Vicki Clancy	EASTSOUND WA 98245 POB 1968
10/1/05		William Wulff	EASTSOUND
10/05		LLOYD PINNEO	134 Bonnie Brae Lane Eastsound
10/1/05		Mathew Chasanoff	

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
10/1/05		TONY P GHAZEL	260 Sunset Ave E/S 98245
10/1/05		Jennifer Pedersen	pobox 166 E/S 98245
10/3/5		NANCY QUACKENBUSH	56 GROVE ES 98245
10/4/05		Jeff Rodenberger	21 SWORD FERN LN 98245
10/4/05		THOMAS M. KNIGHT	110 TERRI LN. 98245
10/4/05		PAMELA EVANS	POB 1346 ES 98245
10/4/05		Geddes MARTIN	P.O.Box 1374 Eastsound 98245
10/4/05		LUKE E. RYAN	326 OLGA RD. EASTSOUND, WA. 98245

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
10-1-05	Sherron Mirran	Sherron Mirran	61 Seavim ES 98245
10·1·05	[illegible]	KRISTIN MIRRAN	POB 1638 ES WA 98245
10-1-05	Terry Moran-Hodge	Terry Moran-Hodge	PO Box 734 Eastsound 98245
10·1·05	Sandi Harris	Sandi Harris	214 Madrona St. Eastsound
10-1-05	[illegible]	BART CURTIS	1867 Mt. Baker RD.
10/1/05	Shelley A Curtis	Shelley A. Curtis	1867 Mount Baker Road ES
10/1/05	Stella Padbury	STELLA PADBURY	17 JENSEN RD EASTSOUND, WA 98245
10/2/05	Felicity Milne	Felicity Milne	PO Box 2026
10/3/05	Sara Morgan	SARA MORGAN	196 Discovery Way Eastsound WA 98245

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
10-4-05	Elmer J. Altnow	ELMER J. ALTNOW	21 Twin House Lane Eastsound, WA 98245
10-4-05	Fanchon L. Altnow	FANCHON L. ALTNOW	21 Twin House Lane Eastsound, WA 98245

Rosario Resort Environmental Impact Statement/ Master Plan Support

Date	Signature	Printed Name	Address
9-29-05		Jim Bankson	1400 Rosario Rd, E.S.
9/29/05	Kate Dillman	Kate Dillman	2145 Obstruction Pass Olga WA.
9/29/05	Jolene Versailles	Jolene Versailles	55 Bartel rd, Eastsound, WA 98245
9/29/05		JAMES A. DEUEL	350 RACCOON POINT RD E/S 98245
9/30/05	Pam Edwards	PAM EDWARDS	778 ROCAL'S HILL RD OLGA 98279
9/30/05	Terrel Kaplan	Terrel Kaplan	380 Shore Drive 98245
11/3/05	Laurie Liebmann	Laurie Liebmann	POB 1098 98245

To The Orcas Island Community:

I am writing today on the behalf of Rosario's Master Plan B. I grew up here on Orcas Island. For as long as I can remember Rosario has been one of the main employers, main attractions, and where so many of my memories have been made. The first time I ever ate at Rosario was for the Sunday brunch they used to serve every Sunday after my baptism. My Godparents, Dorothy and Clyde Brown (50+ year residents until last year), took us there and I still have the photo we took afterwards. In high school they hired me and I began my rounds of the various positions they needed filled. I started in the Spa, cleaning Robert Moran's pool and chatting with guests about the island and the ever changing architecture of the mansion. It was a common thing among my classmates to work at 'the big R'. Many of us fondly refer to it by this name. Many of them will likely write letters of support of the Master Plan once educated about it. The history of the Mansion was one of the most asked questions and still is to this day. I particularly liked history and so found it fun and interesting to sit and listen to anyone with a story. But like most kids I had to escape my home town and see the world. At graduation I was given an award by an anonymous donor that they called, "It Takes a Child to Make a Community" which got me into studying community and its various forms while at Oberlin College in Ohio. I also studied Spanish and traveled to Spain. I thought I would never return to this little rock that had made me feel so isolated from everything that the TV ever talked about.

While living in Oberlin and commuting to Cleveland I determined that I didn't want to live in the city or in a suburb since there just was not enough space to feel comfortable. Later, after taking bus trips across the US I decided I liked the Northwest the best. So when graduation came around and I had discovered my desire to be closer to my family it just seemed right to return to my home town and participate in the wonderful community that had expressed its gratitude for my earlier contributions. I plan on doing more community theater, singing a cappella, teaching Spanish and coaching softball in the spring when I get a bit more spare time. I now live with a sense of purpose to my life and a strong feeling of commitment to our community and its health, wealth and happiness.

I returned to work at Rosario in March of this year and have fallen in love again with the mansion and its rich history. I am a hostess in the main dinning room and do banquets when needed as my second job which helps pay for my gas and food. I also will be providing language classes to those who want to learn either Spanish or English this fall and winter. My fiancée also works full time in Food and Beverage at Rosario. He did so in high school as well. Over the years we have contributed greatly to the occurrence of returning guests and high levels of customer service expected of Rosario. As most working class families that use it for their main source of income we would like to continue to support the traditions particular to Rosario. These include, but are not limited to, throwing seasonal employees into the pool and

pampering people to the hilt which takes group effort on all sides of the hospitality coin. My co-workers at Rosario have a strong sense of camaraderie and teamwork and to lose this place with all that it can offer to our community would be so very sad. We would not have as many foreign exchange students working here in the summer giving both communities a chance to learn about the other's culture, language and perceptions on life. To have steady, sufficiently paid employment is one of the hardest things to come by here on the island for the members of the working class. Several of the workers would not be able to find employers who can sustain their family economics thus have to move off island. This would weaken our community, each individual has more than one role they fill to support the whole. To implement the Master Plan, though there are fears of enough resources, is what is necessary to keep Rosario open.

Many of the kids who grow up here wish to return when they are ready to raise their children and that trend is rising as my classmates and I reach our childrearing years. I was among the group of largest classes ('98, '99, '00, '01) to ever graduate from our high school and of these people I grew up with, at least half have expressed desire to return. Rosario has the potential to provide some of the necessary employment for these individuals to return as well as many other benefits to our community as demonstrated above.

Finally, the word 'rosario' is the Spanish equivalent to rosary. This, as most everyone knows, is a prayer chain used in many different religions for the focus of prayers. Many of the guests I encounter in my daily experience have come to Rosario to offer praise to their relationships through the anniversaries and weddings as well as take the time to reflect on their lives which is the essence of prayer in my mind. Not only do the people need the place for reflection and tranquil space but I need to have a second job to live here in the islands right now and many will follow in my foot steps as time goes on. Please plan for a future that includes these wonderful people and places, the island would not be the same without us.
Thank you for your time and consideration.

Sincerely,

Anna Roseberry
799 Mt Baker Rd
Eastsound, Wa 98245
(360)376-3869

From: shinola@rockisland.com
Sent: Wednesday, October 05, 2005 5:42 PM
To: Martin Blackman
Subject: Rosario Resort master plan

Dear Mr. Blackman:

We would like to register our support for the Plan Alternate B which Rosario resort has submitted to the planning process. We live and work here on Orcas Island, and believe this plan to be the most desirable for the long term survival of the resort as an asset to the economic and cultural life of Orcas Island.
As residents and merchants of Orcas Island, we depend greatly on the commerce and economic activity that Rosario Resort attracts to the island, which ripples through the entire county.
A healthy Rosario Resort is very important to Orcas Island, and the entire San Juan County.
Thank You,

Vance Stephens and Antoinette Botsford
Shinola Jewelry
Eastsound, Orcas Island

PO Box 1334
Eastsound, WA 98245
September 1, 2005

Martin Blackman
Senior Planner
SJC Community Development and Planning
PO Box 947
Friday Harbor, WA 98250

Dear Mr. Blackman,

We have carefully reviewed the Draft Environmental Impact Statement as it applies to the proposed Rosario Resort Master Plan and to our Rosario community. We feel that it is thorough and well-developed, and we give our full support to the "Action Alternative B Plan" for the resort.

We attended the August 29th meeting at Rosario, and would like to clarify a statement made by one of the participants regarding the Cascade Lake water level during the mid-1990s. It is our understanding that state engineers determined that repairs were needed for the Cascade Lake dam, and required the Rosario Utility which has control of the lake level, to reduce the level by thirty six inches. This meant that the level dropped from 351 feet above sea level to 348 feet. During that period weather problems caused the crossover feeder system from Cascade stream to Cascade Lake to fail. Lake level is controlled by this added water from the stream. This failure of the feeder system is what caused the lake to drop below the required level, and as a result, the Utility got into difficulty with the State. Now that the dam has been successfully repaired, the lake is maintained at its proper level.

We also would like to comment on the proposed new Woodland Cottages which will be accessed from Palisades Drive. There arep planned foot trails which will directly connect these homes to the Resort, and so we choose to view them favorably as an integral part of the total resort package.

We've written to you before to express our support for this project, and just wanted to reiterate that we feel very strongly that our entire island will benefit from its implementation. The positive aspects of the Master Plan far outweigh any negatives or concerns which can certainly be addressed or mediated. Thank you for your attention.

Sincerely,

Dean F. Stupke
Audrey R. Stupke

(360) 376-6013
<stupke@rockisland.com>
xc: Christopher Peacock

APPENDIX F

MARINA BIOLOGY REPORT

FOREWORD

This report was included in the project file provided to the consultants at the beginning of the Resort Master Planning process in early 2000. Previous owners of the Resort had explored the possibility of expanding the marina even before initiating the County-required Resort Master Plan. Environmental analysis and preliminary design work including this report was conducted as part of this effort. The marina configuration shown in Figure 2 served as the basis for the marina concept included in Action Alternative A.

Action Alternative B proposes a different, slightly larger marina configuration that was largely based on the findings of this report. For example, the marina configuration in Action Alternative B would be accessed via the existing pier, rather than the jetty or current access point and linear moorage (side ties) would be provided on the shore-side of the dock rather than slips. As a result, this configuration would locate the majority of the over-water coverage offshore of the -4 ft. to -26 ft. band of concentrated macroalgae. Locating most of the marina in deeper water would reduce shading impacts on marine ecosystems from over-water coverage in more biologically productive shallow water areas.

Other than the conceptual layout shown in the Resort Master Plan, no design has been initiated for Action Alternative B. The marina design is envisioned as a Resort Master Plan implementation action to be initiated following the plan's adoption. As part of the design and project permitting process, the marina biology report will need to be updated with new field survey work.

1.0 INTRODUCTION

Cascades Environmental Services, Inc. was contracted by Marshall and Associates to conduct an assessment of marine resources of Cascade Bay in East Sound on Orcas Island, San Juan County, Washington. As part of this study, a preliminary and an intermediate eelgrass, macroalgae and geoduck surveys were conducted in the area of the proposed marina expansion. These surveys were conducted on September 13 and 14, 1997 and followed the Washington State Department of Fish and Wildlife (WDFW) guidelines for eelgrass, macroalgae and geoduck surveys. This survey found a band of macroalgae parallel to the shoreline from the depths of -4 ft to -26 ft relative to mean lower low water. No eelgrass was observed growing in the study area and no geoduck clams were observed. All depths referred to in this report are relative to mean lower low water.

1.1 EXISTING CONDITIONS

Figure 1 shows the existing Rosario Resort Marina. The marina consists on one floating dock and a pier on pilings with associated floats. The pier supports the Harbor Master's office, fuel dock, temporary moorage and sea-plane float. Two floats anchored to the jetty/breakwater offer some protection wind driven waves.

Cascade Bay has a small intermittent stream that drains Cascade Lake in Moran State Park. This stream has not been identified as anadromous salmon spawning stream (WDF 1975). Bait fish such as Pacific herring, surf smelt, and sand lance do not utilize Cascade Bay for spawning (WDF 1992). Marine resources identified by WDFW which utilize Cascade Bay are Dungeness crab (Cancer magister) and Pandalid shrimp (Pandalus spp.) (WDF 1992).

A review of the WDFW Priority Habitat and Species data base confirms that Cascade Bay has not been identified as a location for baitfish spawning grounds, or known eelgrass or kelp beds. Priority species known to occur in the study area are Bald eagles. Cascade Bay is within territory occupied by Bald eagles but observed nesting sites are more than 2,000 feet away from the proposed project area. The rocky cliff on the east margin of the study area is identified as priority habitat associated with Bald eagle and Peregrine falcon nesting sites. However, these species have not been observed nesting in the study area.

1.2 PROPOSED PROJECT

The proposed project will remove the existing structures and replace them with four floating docks and a floating breakwater shown in Figure 2. The floating breakwater will protect the marina from wind driven waves. One or two groins will be constructed to the east of the marina to contain sediment driven by net shore drift and provide some protection from waves.

2.0 METHODS

This survey for macroalgae, eelgrass, geoduck and hardshell clams was conducted according to the preliminary and intermediate survey guidelines of the WDFW.

A preliminary eelgrass and macroalgae survey was conducted on September 13, 1997 using a remote video camera towed below a small boat. Fourteen transects within the Study Area were recorded on video tape. The transects were aligned parallel to the shoreline. Position, and depth were recorded at the beginning and end of each transect. Depth along the transect was determined using the bathymetry map developed by Hartman and Associates.

An Intermediate Eelgrass and Macroalgae survey was conducted on September 14, 1997. Eighteen transects were aligned in the positions of the proposed project and were perpendicular to the shoreline. Figure 1 shows the location of the transects. Following is a description of each transect.

Transect 1. 40 ft east of the centerline of Dock D.

Transect 2. Centerline of Dock D.

Transect 3. 40 ft west of the centerline of Dock D.

Transect 4. 40 ft east of the centerline of Dock C.

Transect 5. Centerline of Dock C.

Transect 6. 40 ft west of the centerline of Dock C.

Transect 7. 40 ft east of the centerline of Dock B.

Transect 8. Centerline of Dock B.

Transect 9. 40 ft west of the centerline of Dock B.

Transect 10. 40 ft east of the centerline of the floating breakwater.

Transect 11. Centerline of the floating breakwater.

Transect 12. 40 ft west of the centerline of the floating breakwater.

Groin Transects 1 through 6 are perpendicular to the shoreline in the area of the proposed groins. The transects were chosen to determine the abundance of the eelgrass and macroalgae community in the area of the proposed groins.

A survey under the existing floating dock (Dock A) was not conducted because the proposed dock will use the same footprint as the existing dock therefore, there will be no impact to the existing habitat.

Divers began at a depth of about -60 ft and swam toward the shore along each transect. At 40 foot intervals, observations along the transect were recorded. Observations at each station include: depth; time; substrate; number of geoduck and hardshell clams within one meter of both sides of the transect; species of macroalgae and percent cover within a 1 square meter quadrant. Depths were converted relative to mean lower low water.

3.0 RESULTS

The preliminary survey determined that a band of macroalgae was observed parallel to the shoreline between the depths of -4 ft and -26 ft. This band consisted primarily of Laminaria, Gracilaria, Ulva and Hedophylum. Eelgrass was not observed in the study area during the preliminary or intermediate surveys. No geoduck clams were observed and a total of 21 horse clams (Tresus capax) were observed by the divers. Weather conditions were moderate, strong south winds raised waves to about two feet, water clarity and water current conditions were good during the survey.

3.1 REMOTE VIDEO SURVEY

Observations made with the remote video camera determined that macroalgae was present between the depths of -4 ft and -26 ft on cobble and gravel substrate. Below the macroalgae band the substrate is generally silt with detritus consisting of woody debris, broken segments of macroalgae and miscellaneous items dropped from boats. In depths less than -30 ft, macroalgae will grow on appropriate substrate. Macroalgae was observed attached to cobbles, boulders and bedrock. Where the substrate was silt, gravel or sand little macroalgae was observed.

3.2 DIVER SURVEY

Diver observations determined the location and percent coverage of the macroalgae community along each intermediate survey transect. The macroalgae coverage ranged from less than 2% to 90%. The density of macroalgae was correlated with the presence of attachment substrate. If appropriate substrate was available then macroalgae was present. Many Pandalid shrimp were observed along the transects at depths of -60 ft. Some Dungeness crab and red rock crab were also observed. Figure 1 shows where macroalgae was observed along the transects.

4.0 CONCLUSIONS

Construction of the proposed project may effect as much as 45,472 ft^2 of the macroalgae community. This area is equivalent of the area of the docks and groins which are directly over the macroalgae community. The dock structures and boats moored to the docks will block direct sunlight and will create a shade zone under the structures. Though macroalgae is adapted to grow

in areas of decreased light, blocking sunlight from the sea surface will reduce the amount of light reaching the macroalgae at depth. The likely result will be a decrease of macroalgae coverage. The proposed project will not effect any eelgrass beds or geoduck clams. Eelgrass beds and geoduck clams were not observed in the study area during either the preliminary or intermediate surveys. Because of their mobility, crab and shrimp are not likely to be impacted by the project.

The area of potential impact was calculated based on the results of the intermediate eelgrass and macroalgae survey. Each transect represents an area equal to 1/3 of the corresponding dock width. For example, the proposed Dock D is 108 ft wide so Transects 1, 2 and 3 each represent a width of 36 ft. Each station of the transects represents a linear length of 40 ft, the distance between stations. The area of potential impact is the linear length of the transect where macroalgae is present multiplied by the transect's portion of the dock width.

The macroalgae community is categorized by percent coverage into three groups; 2% - 30% (sparse); 31% - 60% (moderate) and; 61% - 100% (dense).

Docks B and D have the greatest potential impacts of 14,912 ft^2 and 15,840 ft^2 (32.6% and 34.6% of the total) respectively. Dock C has a potential impact of 6,000 ft^2 (13.1%) and the two groins may impact 5,852 ft^2 (12.8%) of the macroalgae community. The floating breakwater has the least potential impact of 3,120 ft^2 or 6.8% of the total area. About 60% of the total potential impact area is in the sparse (2%-30%) coverage category. The moderate and dense coverage categories have about equal areas of potential impact.

5.0 LITERATURE CITED

WDF. 1975. A catalog of Washington Streams and salmon utilization Volume 1: Puget Sound region. Washington Department of Fisheries. Olympia, WA.

WDF. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Technical Report No. 79. Washington Department of Fisheries; Habitat Management Division. Olympia, WA.

Figure 1: Macroalgae Coverage

NOTES:
1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM NORTH ZONE.
2. VERTICAL DATUM: MLLW (NOS)
3. MACOALGAE INFORMATION PROVIDED BY CASCADES ENVIRONMENTAL SERVICES,, INC. NOV. 11, 1997
   SURVEY TAKEN SEPT. 13-14, 1997
   AND DIGITIZED BY HARTMAN CONSULTING CORPORATION ON DEC. 14, 1997.
4. BATHYMETRIC SURVEY PROVIDED BY HARTMAN CONSULTING CORPORATION. ON SEPT. 27, 1997.
5. FLOATING BREAKWATER & NEW DOCK DESIGN PROVIDED BY MARSHALL & ASSOC. DRAWING NAME ROSARIO HARBOR CONCEPTUAL SITE PLAN DRAWING B. (NOT DATED)
   AND DIGITIZED BY HARTMAN CONSULTING CORPORATION ON DEC. 14, 1997.

▼ HARTMAN CONSULTING CORPORATION
SEATTLE, WA
HOUSTON, TX
OAKLAND, CA
A SUBSIDIARY OF FOSTER WHEELER ENVIRONMENTAL CORPORATION

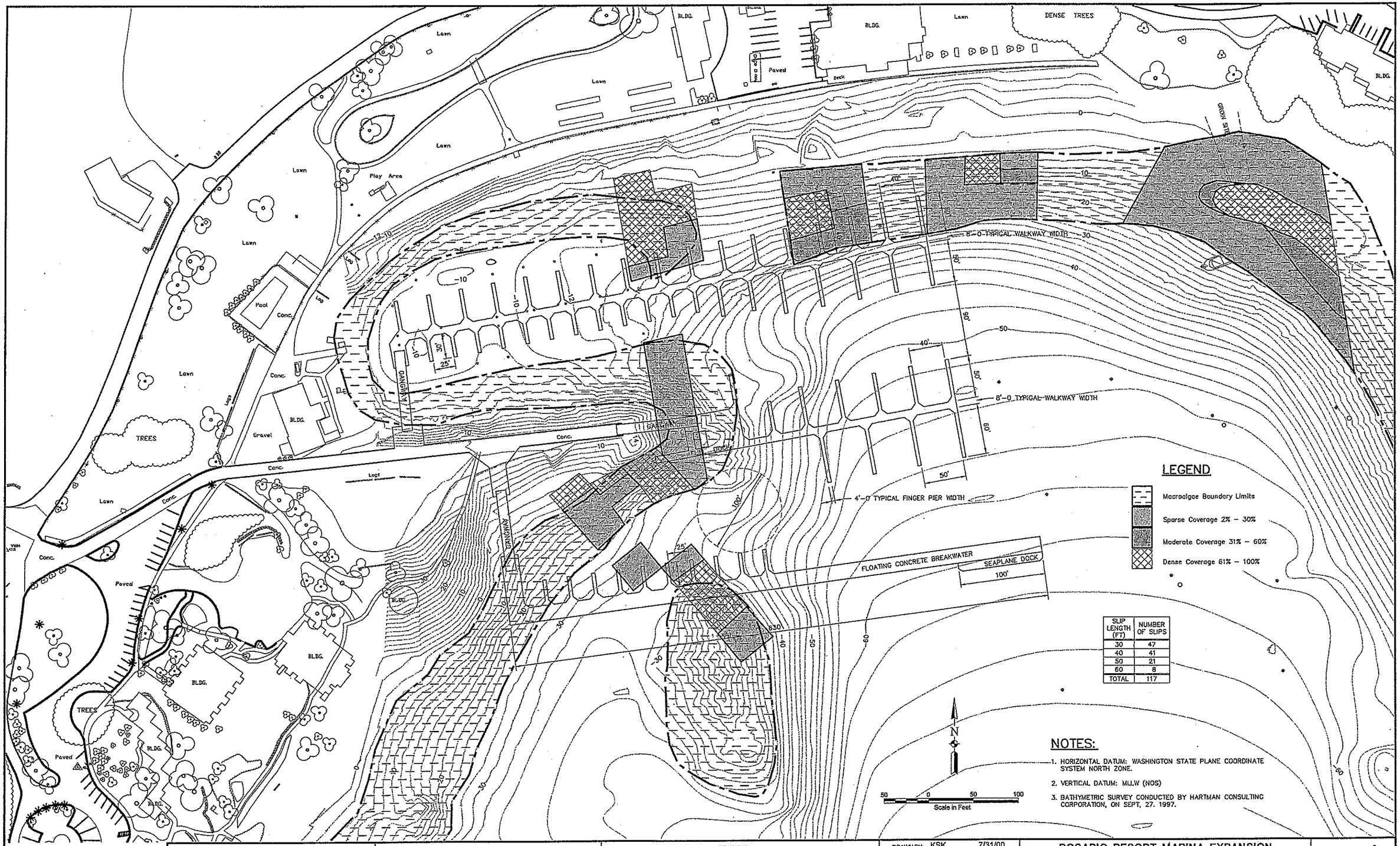
REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DRAWN BY: BGH 11/24/97
CHECKED BY:
APPROVED BY:
FILE: PRE_1R1
DATE: 11/24/97

ROSARIO RESORT
MACROALGAE COVERAGE
BASE MAP
SHEET 3 OF 4

DRAWING NO. 3
PROJECT NO. H271
SHEET NO. 3 OF 4

Figure 2: Habitat Map



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PLOT/UPDATE: JUL 31 2000 14:40:29

HARTMAN CONSULTING CORPORATION
SEATTLE, WA
HOUSTON, TX
OAKLAND, CA
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REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DRAWN BY: KSK 7/31/00
CHECKED BY: JEL
APPROVED BY:
FILE: MROSPP06
DATE: 7/31/00

ROSARIO RESORT MARINA EXPANSION
CONCEPTUAL BERTHING ARRANGEMENT
PROPOSED ALTERNATIVE 2
HABITAT MAP

DRAWING NO. 6
PROJECT NO. 2340
SHEET NO. 6 OF 6

APPENDIX G

STORMWATER MANAGEMENT PLAN

Conceptual Stormwater Management Plan for the Rosario Resort Master Plan

October 27, 2005

Prepared by

SE GROUP

3245 146th Place SE
Suite 360
Bellevue, WA 98007

Table of Contents

1.0 INTRODUCTION

On August 24 2005, the Draft Environmental Impact Statement (DEIS) for the Rosario Resort Master Plan (SE Group, 2005) was released to the public by the San Juan County Community Development and Planning Department. The programmatic DEIS analyzes the environmental effects of the proposed Rosario Resort Master Plan (RMP) (EDAW, 2005). The stated purposes of the Master Plan are to:

- Provide direction to the Resort as it is restored, rebuilt and expanded to fulfill its potential.

- To comply with San Juan County's requirements. As implemented by the Unified Development Code (UDC), the San Juan county Comprehensive Plan accommodates the unique land use needs of self-contained resorts, including planning flexibility, with the special MPR land use designation,

- To be used by the County to regulate land uses within the MPR boundaries and to provide the basis for environmental review of those uses and activities.

Consistent with the purpose of the RMP, this Conceptual Stormwater Management Plan (CSMP) has been developed to provide a similar basis for the location and sizing of stormwater management facilities as Rosario Resort is re-developed in the future. In keeping with the programmatic nature of the RMP and the decision framework of the RMP EIS process, this CSMP does not provide detailed plans for stormwater management facilities (e.g., specific placement of facilities, sizing of facilities, routing of storm events, etc). Rather, the CSMP presents strategies for meeting the federal, state and local stormwater requirements as individual resort projects are undertaken. Final design of these stormwater facilities, and final approval of such designs, will be included in the site-specific approval process as individual projects are designed and submitted for agency approval.

In response to public, agency and other stakeholder comments on the DEIS, SE Group has prepared this Conceptual Stormwater Management Plan (CSMP) to accompany the RMP document. This CSMP addresses various parking areas, roads, and other facilities proposed in the RMP. Specifically, this CSMP addresses issues raised during the public comment period. In addressing these issues, the CSMP focuses on five main areas of the resort proposal:

- Resort Core

- The Hillside

- Upper Basin

- Utility Tract

- The Hilltop

These areas are further defined in the RMP (see Figure 1). Section 3.4 of this document provides a summary of the proposed improvements at each area.

The following sections of this document define the objectives of the CSMP, summarize the existing conditions, the regulatory criteria used for recommendations in this conceptual report, and present concepts for proposed stormwater facilities at each area. The final design for the Rosario Resort stormwater system will take into account the approved Resort Master Plan, the site-specific approval process, and site specific data (e.g., topographical surveys, geotechnical investigations).

1.1 KEY ISSUES

Key issues have been identified during the public comment period, based on the analysis of impacts in the DEIS. The following presents a brief summary of the issues raised.

1.1.1 BUILDING AND ROOF SURFACES

The existing buildings and roof structures within the resort currently have no stormwater treatment. Stormwater is currently collected from roof and building surfaces in downspouts and conveyed overland, directly into Cascade Bay. Additionally, the roof of the historic Moran Mansion is made of copper and may contain lead solder. Due to the close proximity of the mansion to the shoreline, runoff from the existing roof may contain these heavy metals (no testing for heavy metal contamination has occurred to date) and as a result, presents a potential source of heavy metal pollution in Cascade Bay. Under the RMP, roof surface area would increase within the shoreline zone. Stormwater management would be needed to eliminate the potential for contaminated runoff into adjacent waterbodies and to comply with Federal, state and local regulations for protection of the marine waters of Cascade Bay.

1.1.2 ROADS AND PARKING LOTS

Existing roads and parking lots within the resort do not receive any stormwater conveyance or treatment. The roadside ditches do not currently have enough capacity to convey stormwater runoff. The impervious areas proposed in the RMP would contribute to increased peak flows, exacerbating the current condition.

Gravel roads and parking lots in the proposed MPR are susceptible to the kinetic energy of rainfall and surface runoff, which may erode the native surface, resulting in sediment laden runoff from these areas. Without stormwater management, these existing facilities and new facilities proposed in the RMP could lead to increased sediment yield and turbidity in adjacent waterbodies during storm events.

Oil, grease, and other vehicle fluids are sources of petroleum hydrocarbon contamination, and without proper stormwater treatment, the proposed increase in parking areas under the resort development could increase the potential for petroleum hydrocarbon releases, as well as contamination in adjacent waterbodies.

1.1.3 SHALLOW SOILS

Several issues regarding stormwater management are created by the geology within the resort area. A thin layer of organic soils (typically one foot deep or less) overlays bedrock under the site. The issues caused by the thin soil and shallow bedrock include:

- Lack of infiltration and storage capacity within the shallow soils
- The shallow bedrock behaves as impervious surface due to the limited soil storage capacity.

Under the existing conditions, impervious surfaces (e.g., roofs, roads, parking lots) drain overland to areas where limited infiltration can take place, resulting in overland flow into Cascade Bay. The creation of additional impervious surface proposed in the RMP would displace the already-limited soil storage, causing increases in increased erosion from peak flow events. Furthermore, because the soil is thin it can quickly become saturated during heavy precipitation and produce runoff comparable to an impervious surface.

1.1.4 SHORELINES

Currently, direct discharge of stormwater without treatment occurs via downspouts and overland flow. The University of Washington Friday Harbor Labs and the San Juan County Marine Resource Committee have raised the issue of contamination of shoreline ecosystems due to the discharge of untreated stormwater from developed areas. The close proximity of the existing development to the shoreline could potentially result in impacts to the shoreline and marine environment from untreated runoff. The improvements outlined in the RMP include additional development along the shoreline zone, as well as the creation of additional impervious surfaces near the shoreline. The additional development would result in increased stormwater flows into Cascade Bay, potentially delivering sediment and pollutants to the marine environment.

1.1.5 FERTILIZERS AND PESTICIDES

The existing resort environment is maintained with gardens and grassed lawn areas, which often require the use of fertilizers and/or pesticides. With no current stormwater management or vegetation management plans in place, the scale of delivery of these substances to the bay is unknown. Landscaping of the additional development proposed in the RMP has the potential to introduce additional fertilizer and pesticides into nearby waterbodies. In response to concerns raised by several agencies during the DEIS comment period, this CSMP addresses the treatment of runoff from sites where fertilizer and pesticides are used. The CSMP also addresses the use of biological controls and xeriscaping to reduce the need for chemical fertilizers and pesticides.

2.0 REGULATORY FRAMEWORK, OBJECTIVES AND CRITERIA

This conceptual stormwater management plan (CSMP) has been prepared according to the standards for storm drainage established in Section 18.60.070 of the San Juan County Unified Development Code (UDC). According to the UDC, new developments and redevelopments must conform to the standards and minimum requirements set by the Washington Department of Ecology Stormwater Management Manual for Western Washington (Ecology 2005). This CSMP is intended to outline the process for developing the Stormwater Site Plan (SSP), the Stormwater Pollution Prevention Plan (SWPPP), and construction of stormwater facilities during a project-level review of the proposed development.

In general, this report has used the guidelines provided in the Stormwater Management Manual for Western Washington (SMM) (Ecology 2005). Table 2-1 summarizes the key design criteria for addressing water quality storage, reduction of sediment yield to downstream waters and reductions in peak flow volumes resulting from increased impervious surfaces.

Table 2-1
Proposed Quantitative CSMP Performance Goals

Event	Water Quality Treatment	Sediment	Flows
6-month, 24-hour (Design Volume)	Detain runoff to maintain or reduce effluent concentrations of TSS[1] and oil and grease	Detain runoff to allow for settling of sediment and other solids to reduce delivery to downstream waters.	Release detained flows at no greater than the 2-year, 24-hour volume.
Larger Storm events	No requirement beyond Design Volume	No requirement beyond Design Volume	Safely convey event to desired location via hardened structures to separate high-energy flows from the fragile soil profile.

[1] Total Suspended Solids.

Design criteria outlined in the SMM include ten minimum requirements. Based on the size and scope of the RMP, all ten minimum requirements would likely be required for Rosario Resort (see SMM Chapter 2 – Minimum Requirements for New Development and Redevelopment). Final determination of the requirements will be made during project-level review of the proposed Rosario Resort redevelopment.

3.0 STORMWATER MANAGEMENT

3.1 EXISTING CONDITION

Since its inception nearly five decades ago, Rosario Resort relied on the same stormwater control system installed at the turn of the last century – direct discharge into Cascade Bay via downspouts (buildings) and overland flow (other impervious surfaces). Many of the existing roads and parking areas do not have adequate conveyance to control the quantity or quality of stormwater runoff that ultimately enters Cascade Bay.

Of particular importance to stormwater management within Rosario Resort are the shallow soils and close proximity of the bedrock to the surface. This creates difficulties for excavation that is typically required for the construction of standard detention ponds or the installation of pre-fabricated concrete vaults. Therefore, this CSMP incorporates elements that do not require deep excavations or large detention ponds. During site-specific design, the use of detention ponds and/or vaults to detain stormwater will be considered based on the practicality of such excavation, cost, and the degree of disturbance required for construction of stormwater facilities.

Secondly, the shallow soils and bedrock poses a challenge for infiltration of stormwater. Distributed infiltration of stormwater, small amounts in many places, would help to maximize seepage through the bedrock. The shallow organic soil layer exhibits a limited capacity to store water, and typically acts as an impervious surface once saturated.

3.2 STORMWATER TREATMENT OBJECTIVES

The focus of the CSMP for Rosario Resort is to address the requirements of the San Juan County UDC and the key issues described in Section 1.1 – Key Issues. Furthermore, this CSMP is intended to guide the development of the SSP, SWPPP and other stormwater management planning during project-level design. This CSMP provides for the following treatment, none of which is currently provided at Rosario:

- collection, detention and routing of surface runoff,
- improvement of water quality /sediment retention,
- protection of erodible soils,
- treatment for petroleum hydrocarbon contaminants, and
- management of fertilizers and pesticides

The following presents a brief description of each treatment.

Collection, Detention and Routing of Surface Runoff.

Collection of stormwater would be accomplished by intercepting flows from impervious surfaces at intervals that are sufficient to minimize concentrated flows on the impervious surface (e.g., parking lot). Such collection methods include in-sloping or out-sloping roads and parking lots to

drain to conveyance channels, as well as the establishment of curb and gutter to intercept road or parking lot drainage to drop inlets. Roof drainage systems (gutters and downspouts) are a common means of collecting runoff from roof surfaces.

Upon collection of the stormwater, the water is conveyed to a treatment facility that is designed to detain flow in a basin, vault or bioswale. Once the basin has filled to its design volume, the 6-month, 24-hour storm in this case, the water is released at a specified rate no more than the 2-year, 24-hour flow rate). Released water is then routed to a designated discharge location via ditches, pipes or other means of conveyance.

Water Quality Treatment/ Sediment Retention

Reductions in sediment yield from roads and parking lots would be accomplished by routing surface runoff to catchments and/or detention basins, as described above, to allow fine sediments to settle out into the detention structure. These fine sediments would be retained in the basin along with other contaminants that are known to attach to these sediments. Retention of these sediments would significantly reduce the contribution of fine grained sediments from impervious surfaces into Cascade Bay. All existing and proposed impervious surfaces would be treated to address the increase in runoff, per the criteria provided in Section 2.0, Table 2-1. Flows greater than the design storm event would be passed through the detention facility and safely conveyed, as described below.

Protection of Erodible Soils

In cooperation with the removal of sediment at the source, protection of fragile soils between the detention facility and the discharge location is important to insure that additional sediment is not liberated after treatment. In order to protect soils, the stormwater collection and detention facilities drain through a series of rock-lined ditches, bioswales and/or pipes (tightlines) that are designed to carry treated stormwater safely to the discharge point without the possibility of soil erosion. This series of conveyance structures would be sized to convey significantly more volume than the required detention volume, e.g. conveying the 100-year, 24-hour storm event.

Treatment for Petroleum Hydrocarbon Contaminants

Oil and grease contaminants are often present in stormwater from parking lots and roads. These contaminants can be removed through the installation of oil water separators (OWS) at each parking lot discharge location, after collection of stormwater and prior to detention. The OWS would be sized to treat anticipated runoff corresponding to the design criteria outlined in Section 2.0. Schematics of an OWS are provided as examples in Attachment A for various flow ratings.

Management of Fertilizers and Pesticides

The use of fertilizers and pesticides is common, particularly in areas where grass is maintained as turf. The RMP includes considerations such as biological controls and the use of xeriscaping to reduce reliance on fertilizers and pesticides (refer to the Rosario Resort Master Plan Vegetation Management Plan in Appendix F). Under the CSMP, areas that are to be maintained in a turf condition would be designed to include a turf with a sufficiently thick root structure to minimize liberation of applied chemicals during rain events. Grassy areas that would not drain to other

detention facilities would be graded to drain through vegetated buffers prior to drainage into Cascade Bay.

The feasibility of the conceptual stormwater facilities proposed in this report is based on preliminary design assessments specific to the site. No site topographic survey was available for this CSMP. A detailed topographical survey will be required to support the final design. Typical diagrams/schematics for individual stormwater facility components are provided in Attachment A. Final design and specification of stormwater facilities will be completed at the time of final SMP implementation using the detailed site specific survey information and the most current inventory of existing conditions. During the site-specific approval process, alternative means of achieving the desired stormwater management objectives may be evaluated.

3.3 CONCEPTUAL TREATMENT ALTERNATIVES

The following conceptual treatment elements have been proposed for Rosario Resort. One or more of these elements would be used to provide stormwater treatment in each of the five resort areas, see Section 3.4. The use of several elements in one area, referred to as a treatment train, would track stormwater from interception through quality/quantity treatment and its discharge. Typical diagrams of these element can be found in Appendix A.

- Pervious surfaces
- Bioswales
- Catch Basins
- Oil-water separators
- Foundation Storage Vault
- Detention Basins

Pervious Surfaces

Pervious surfaces (e.g., concrete, pavers) allow stormwater to pass directly through and infiltrate into the groundwater. Pervious surfaces are typically installed on a gravel surface that allows for short-term storage and infiltration. Final design of the pervious surface area is a site specific task and will be completed during the final stormwater site plan. The design will take into account treatment volumes required by the SMM and the capacity of the soil/sub-base material to hold intercepted runoff.

Bioswales

Bioswales are designed to treat the 6-month 24-hour storm per the SMM guidance. Design criteria such as bottom length, slope of channel, depth of water, velocity of flow, and side slopes would be designed per the SMM. Rock check dams would be installed to further retain suspended sediments and reduce velocities and time of concentration above the discharge location.

Bioswales would be vegetated with native grasses, shrubs, and trees. Final determination of vegetative types would be included in the final design. Species would be selected to provide for the treatment objective, while not intruding upon the visual quality of the resort. Selection of grass/shrub/tree types would recognize that establishing new vegetation at the site can be

difficult and may take some time to establish sustainable plant communities. Additionally, soil supplementation may be required to provide ample substrate and nutrients to establish the plants.

Catch Basins

The catch basins would provide preliminary treatment for sediment and other suspended solids. Individual catch basins would have a minimum of 2 feet of dead storage space below the inverts of outflow piping to act as a sediment trap. Catch basins would be installed in parking areas at appropriate places in the overall treatment train. A final catch basin will be placed in the treatment train prior to any outfall into a receiving water body or conveyance swale to serve as an energy dissipater. Discharge sites will also be protected with stone or a similar means of outlet protection.

Oil-water separators

An oil-water separator (OWS) is typically a self contained unit designed to separate petroleum contaminants from stormwater discharges. Several types are available, including coalescing plates, spill control, and American Petroleum Institute (API), and each have different advantages and disadvantages. Final design would depend on site specific requirements.

Foundation storage vault

Due to the steep slopes, shallow soils, and limited space in portions of the resort, there is a lack of space for traditional stormwater management elements, such as detention basins. In order to address the stormwater issues associated with new development and impervious surfaces, conceptual foundation storage vault designs have been developed specifically for this CSMP. The design is based on the typical underground detention vault; however it has been modified to fit within the space afforded by the building footprint and provides additional water quality treatment not typically addressed in conventional vaults.

A catchment trench located on the upslope side of a building provides for the removal of sediments from intercepted stormwater (adjacent parking or other impervious surfaces). Inlet pipes, sized according to the SMM, from the catchments would allow water to flow under the building and filter through pea gravel prior to exiting the foundation into a bioswale. The bioswale, designed according to the SMM, would provide further water quality treatment and infiltration capacity as runoff progresses down the treatment train.

The foundation footings can be designed so that an amount of storage, determined by the requirements of the SMM, can be built into the overall design of the building. Roof downspouts collect water and can either discharge it to the catchment trench or directly to the bioswale. Overflow ditches from the catchment trench lead to the bioswale to convey storm events above the design volume.

Detention Basin

Detention basins are manmade features designed to temporarily hold stormwater runoff to reduce impacts related to increased peak flows (e.g., downstream erosion). Detention basins are sized to hold volumes from the targeted storm event (6-moth, 24-hour in this case) and release the water at a controlled rate. The size and specific design of a detention basin is related to site-specific

characteristics (e.g. the total area of impervious surface to be treated, suitable locations, and substrate conditions) and subject to the design criteria outlined in the SMM.

3.4 STORMWATER FACILITY DESIGNS

The following sections outline to conceptual treatment train for each resort area. The final design of stormwater facilities will be determined during project-level review of the proposed resort. A topographical survey will be completed prior to design and construction of the stormwater facilities. Adjustments may be made to the site-specific plan if site topography or substrate is not suitable for the conceptual design as presented in the CSMP.

3.5.1 RESORT CORE

The proposed parking lots in the vicinity of the Moran Mansion would be insloped, possibly with curb and gutter, to convey stormwater to a culvert that runs along the northwest edge of pavement. Catch basins would be installed along the culvert at regular intervals to allow sediments to settle out. The culvert would convey stormwater through an OWS to one of two locations: the Figure 8 lagoon or a construction of a new bioswale/ detention basin south of the proposed mini-mansions. The Figure 8 Lagoon could be retro-fitted as a detention basin (design volume only), which could then drain to Cascade Bay via a pipe or ditch. Under the second option, a bioswale (design volume and higher flows) could be installed to convey flows through the mini-mansion area and into Cascade Bay via a vegetated filter strip or a detention basin.

The proposed patio area north of the Moran Mansion and the patio adjacent to the Boatel would be constructed out of pervious surfaces. Roof drains from Mansion Annex and proposed restaurant would discharge onto the pervious surface. Additionally, trails and walkways throughout the resort core would be constructed out of pervious surfaces. To the extent possible, these areas would be sloped to drain toward treatment facilities at the Figure 8 Lagoon or the mini mansions, as described above. The remaining areas to the west would be drained via a landscaped, rock lined channel to a similarly landscaped basin below the waterfront cottages.

The existing Moran Mansion copper roof would be replaced with a more inert material. Therefore a potential source of heavy metals in the stormwater would be eliminated. Roof drains from the Moran Mansion and proposed mini-mansions would be directed to the bioswale/ detention basin, described above for treatment of the parking lots.

Bioswales would be constructed between the proposed Marina Village cottages and the shoreline. Bioswales would also be constructed to treat runoff from the restored Boatel and proposed Marina View Cabana condos. These bioswales would drain the area to either the Figure 8 lagoon or Cascade Bay.

Grass lawns and other landscaped features would be sloped to drain to a bioswale or vegetated filter strip to remove excess nutrients from fertilizers before discharging into Cascade Bay.

3.5.2 THE HILLSIDE

Due to the steep slopes within the hillside area, foundation storage would be constructed for each building. Ditches would be constructed along the access roads to convey runoff to the Figure 8 Lagoon or to the bioswales adjacent to the Marina Village Cabana condos in the western portion

of the Hillside. In the eastern portion of the Hillside, bioswales or rock-lined ditches would be constructed to convey runoff to Bowman's Creek. Ditches would be constructed according to the SMM, and flows to Bowman's Creek would not exceed the design standards. All trails and pedestrian paths would be constructed out of pervious surfaces. Catch basins and oil/water separators would be installed where applicable to treat runoff from parking areas.

3.5.3 UPPER BASIN

Due to the steep slopes within the Upper Basin, foundation storage would be constructed for each building. Ditches would be constructed along the access roads to convey runoff to Bowman's Creek. Ditches would be constructed according to the SMM, and flows to Bowman's Creek would not exceed the design standards. All trails and pedestrian paths would be constructed out of pervious surfaces. Catch basins would be installed along the access roads where appropriate.

3.5.4 UTILITY TRACT

The access road to the sewage treatment ponds would be graded so that runoff is directed to the east along the road. A bioswale would be constructed on the southern edge of the access road between to the proposed storage building and the treatment ponds.

A second bioswale would be constructed at the edge of the parking area to the east of the proposed storage building. This bioswale would collect runoff from the proposed storage building and the pavement to the north.

The proposed maintenance building would contain foundation treatment sized to capture the runoff from the surrounding pavement, and water treatment buildings. The access road and parking areas would be graded to convey runoff to the treatment area. Curb and gutter may be required at the edge of pavement to direct runoff. If the site topography does not permit the construction of foundation storage, stormwater treatment would occur through the bioswales constructed along the upslope edge of pavement. Impervious surfaces would be graded and designed to convey flows to the bioswale.

3.5.5 THE HILLTOP

The Hilltop parcel contains separate spaces for parking and employee housing. Preliminary topography indicates the property slopes from the employee housing area down to the proposed parking lots.

Water quality treatment would occur in the lower overflow parking lot through a series of bioswales. The central space between the two lots would contain a bioswale. The parking areas would be graded so that water flows to the central bioswale. A catch basin would be installed in the center of the swale, with the opening protected by a trash rack. A pipe would then lead from the catch basin under the lower lot and discharge into a secondary bioswale. Overflow from the secondary bioswale would be discharge via a level spreader into a vegetated filter strip or, if soil conditions allow, an infiltration gallery.

The employee housing area would contain culverts to capture and convey stormwater to the lower parking lot via a ditch along the road. The employee parking lot would be graded so that

stormwater is directed to the southwest corner where a catch basin would be installed. The catch basin would outfall into a ditch along the road. Runoff from the building and impervious surfaces in the housing area would be directed to a ditch that runs along the access road. The roadside ditch would outfall to the western end of the lower bioswale. The bioswale would be sized according to the SMM to treat all impervious surfaces within the Hilltop parcel.

4.0 MAINTENANCE

Maintenance of the stormwater system should occur on annual basis during the summer. Maintenance of the system should focus on inspecting the individual elements for signs of damage, obstructions/ blockages, and other issues. If the facilities are damaged, efforts should be taken to correct the situation.

Specific components of the stormwater system that should be maintained on a more frequent basis are described below.

Oil/water separators

OWSs should be inspected and maintained as needed at a minimum of three times per year: in at the beginning of summer in approximately June, at the beginning of winter in approximately October, and during the winter season in approximately February. OWSs should also be inspected after large storm events. The criteria for large storm inspections would be determined in the final design. Damaged elements of the OWS should be replaced/repaired as soon as possible after an inspection.

Catch Basins

Catch basins should be cleaned on a semiannual basis, once at the beginning of summer and once during the winter season. Inspections of each basin should occur after major storm events to determine the need for additional cleaning.

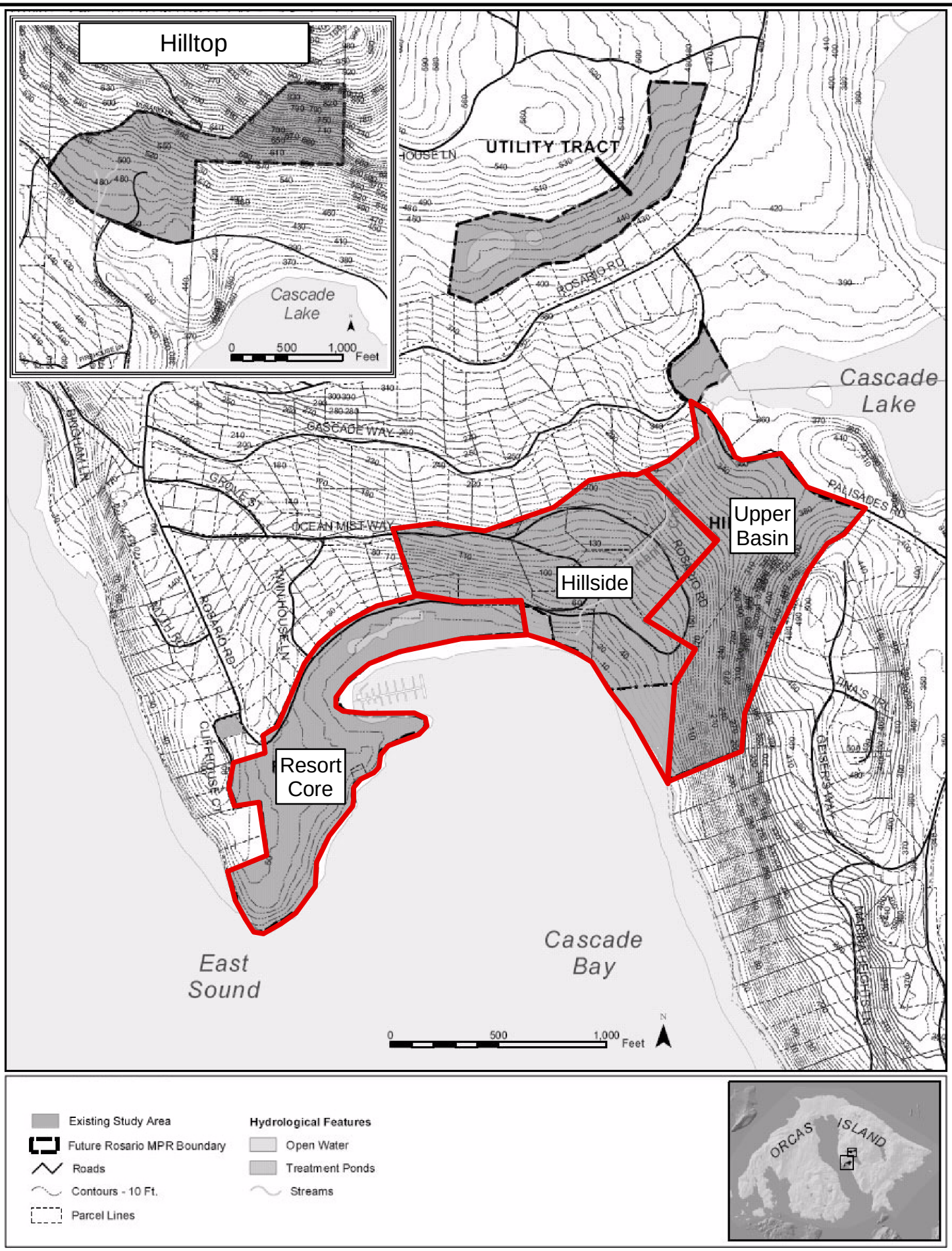
5.0 REFERENCES

EDAW. 2005. Rosario Resort Master Plan.

SE GROUP. 2005. Draft Environmental Impact Statement – Rosario Resort Master Plan.

Washington Department of Ecology. 2005. Stormwater Management Manual for Western Washington.

Figures



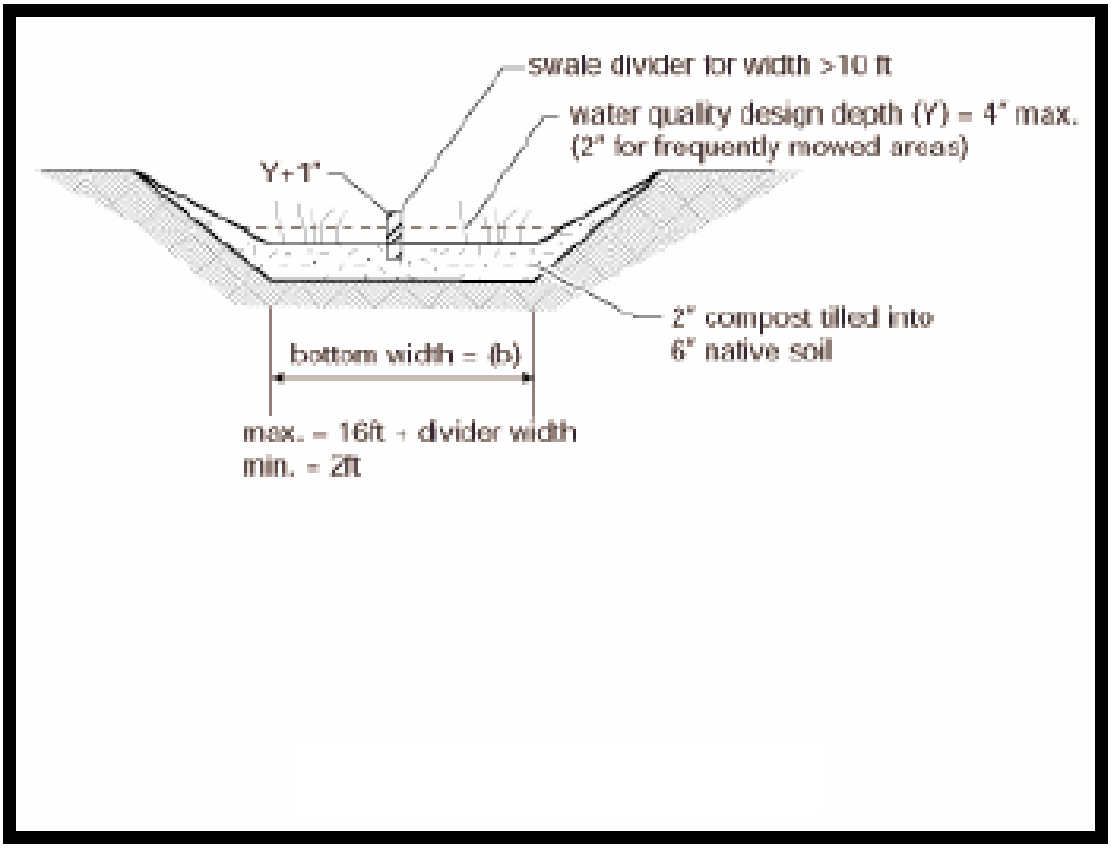
Resort Areas

Figure 1

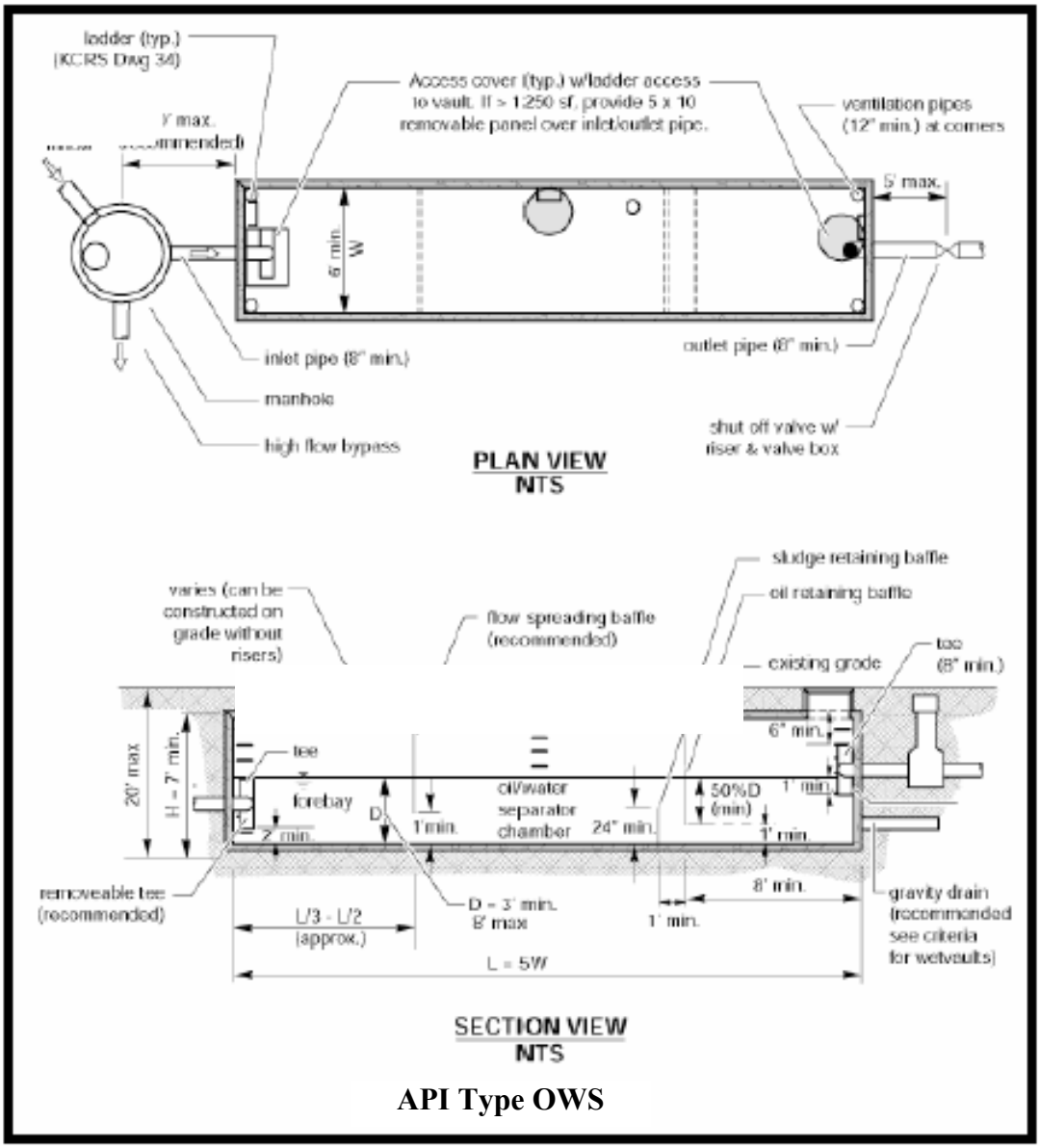
SE GROUP

Attachment A

Construction Typicals

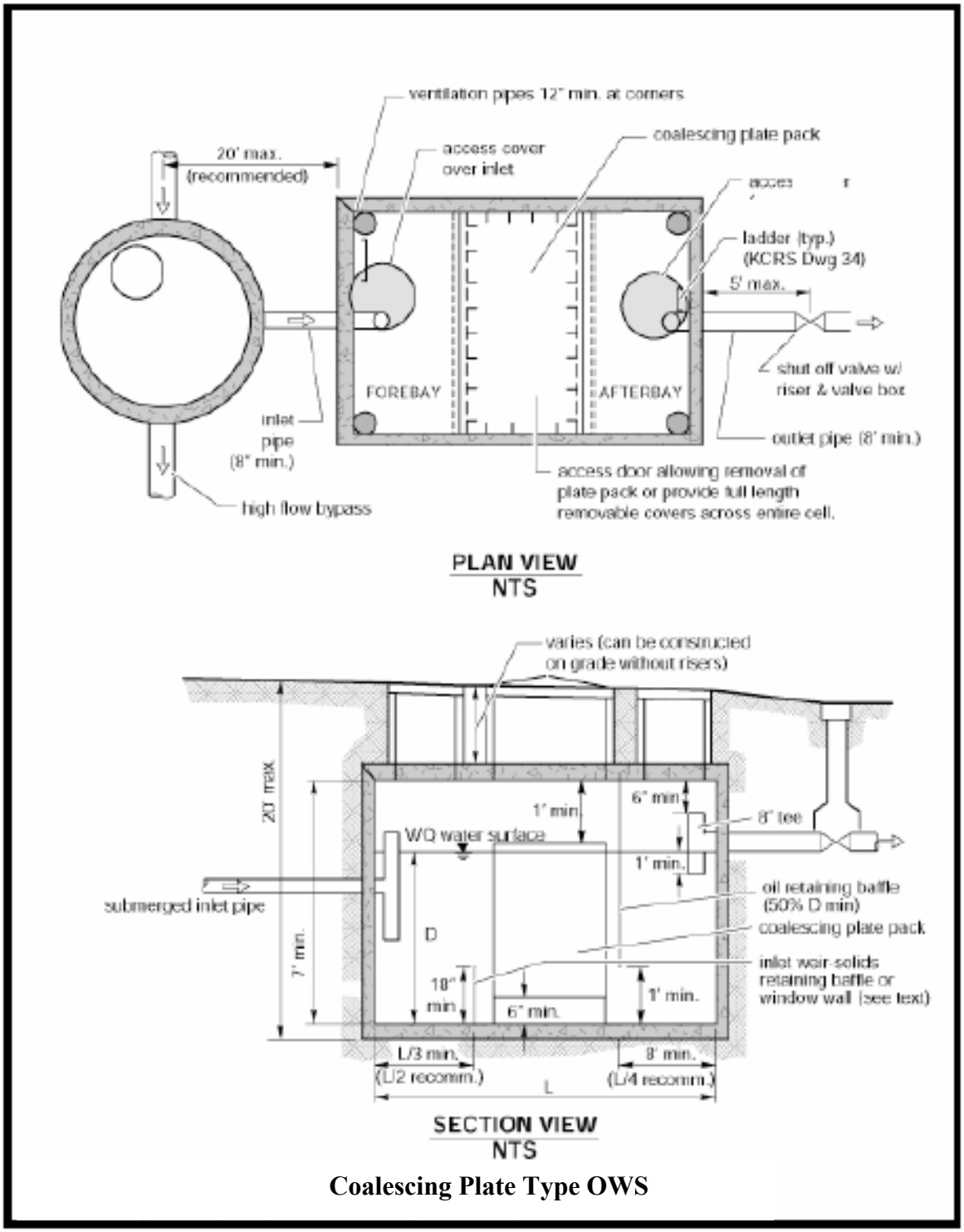


Source: Stormwater Management Manual for Western Washington (Ecology, 2005).



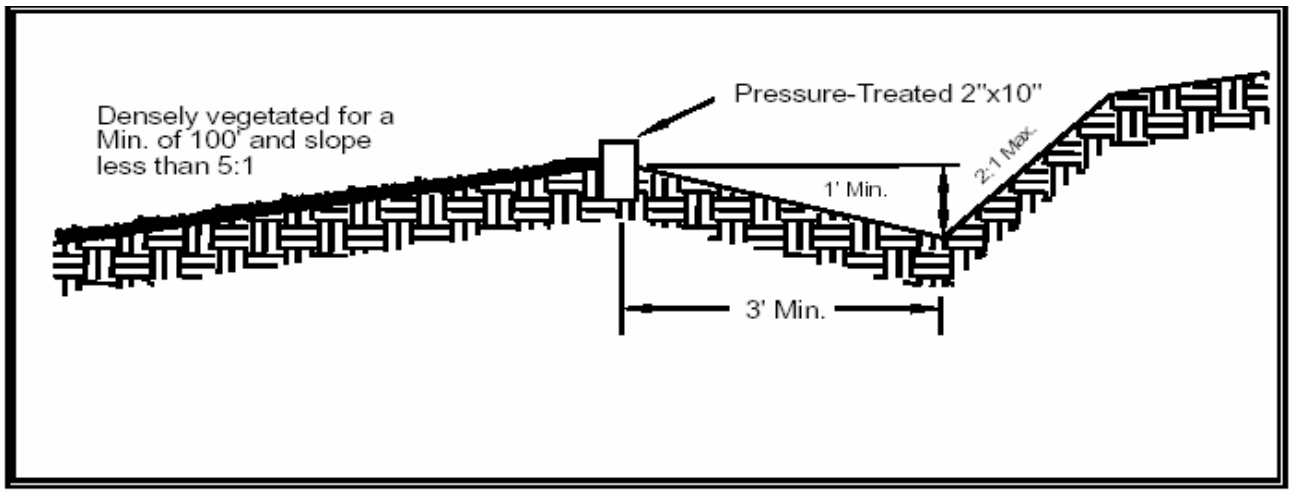
API Type OWS

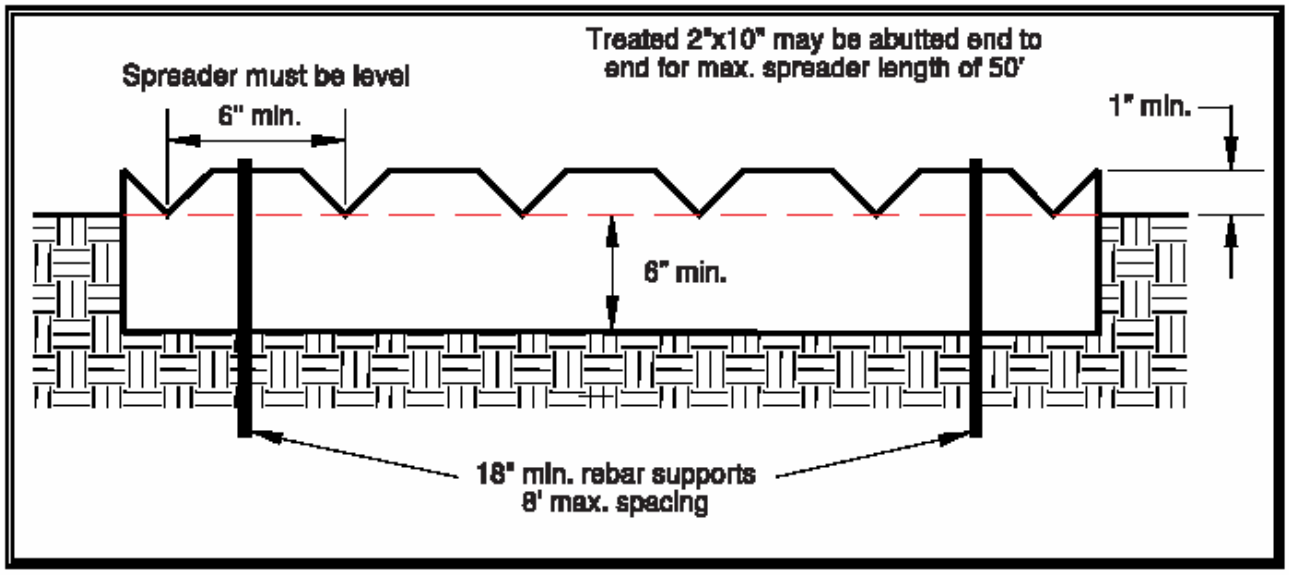
Source: Stormwater Management Manual for Western Washington (Ecology, 2005).



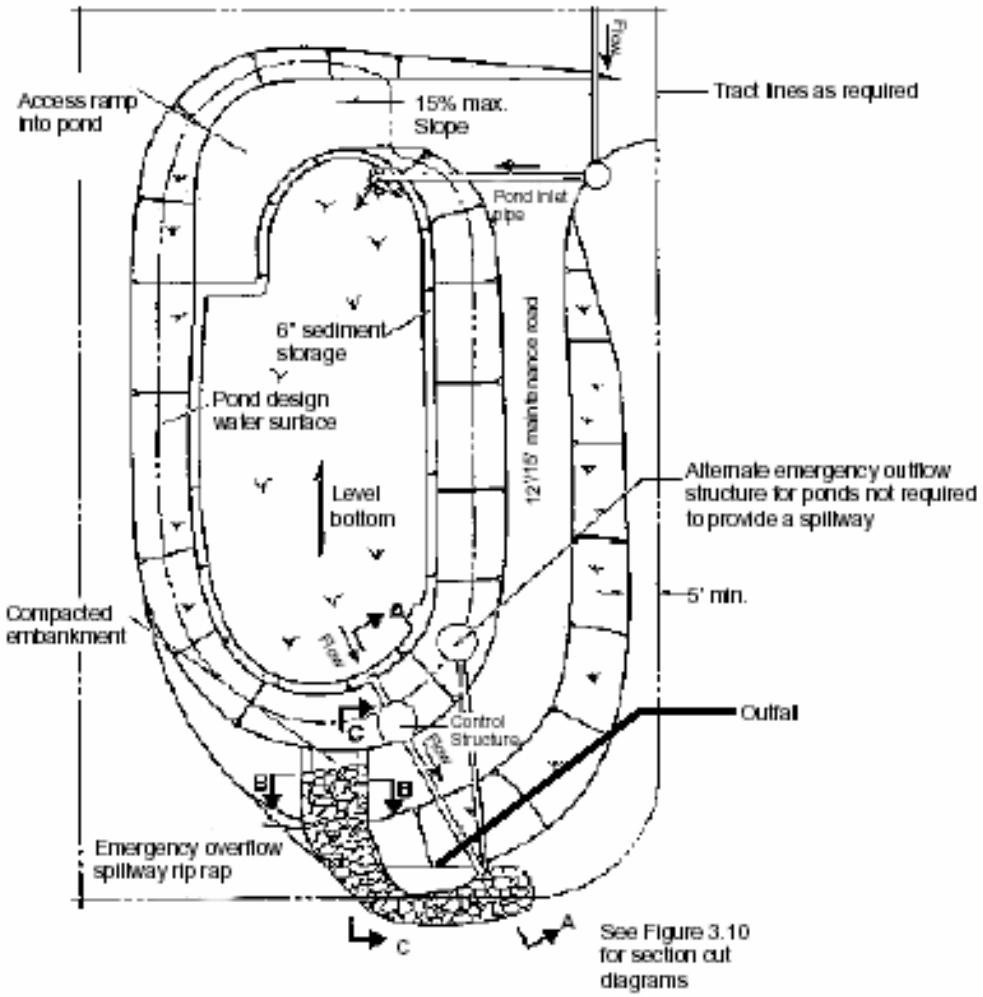
Coalescing Plate Type OWS

Source: Stormwater Management Manual for Western Washington (Ecology, 2005).





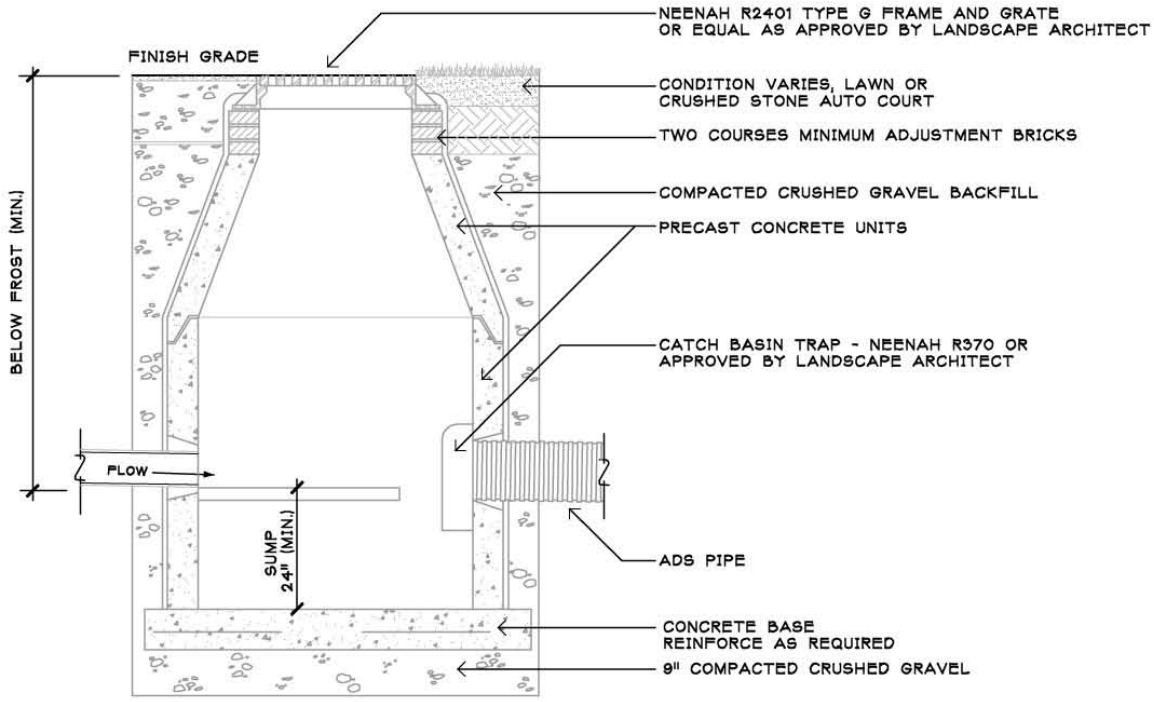
Source: Stormwater Management Manual for Western Washington (Ecology, 2005)



Note:
This detail is a schematic representation only. Actual configuration will vary depending on specific site constraints and applicable design criteria.

Figure 3.9 Typical Detention Pond

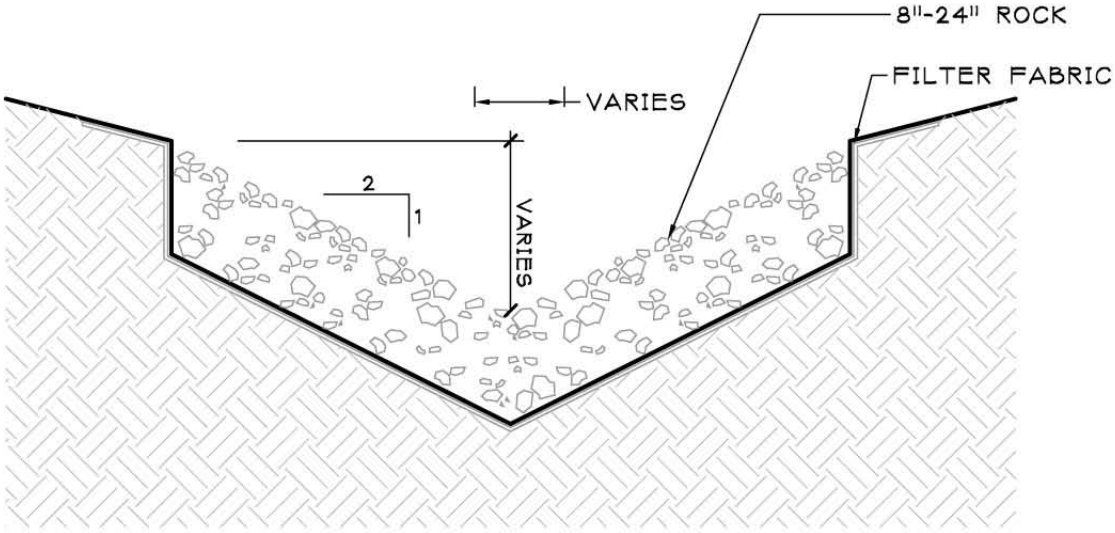
Source: Stormwater Management Manual for Western Washington (Ecology, 2005)



PRECAST CONCRETE CATCH BASIN

SCALE: 1/2"=1'-0"

DROP INLET/ CATCH BASIN

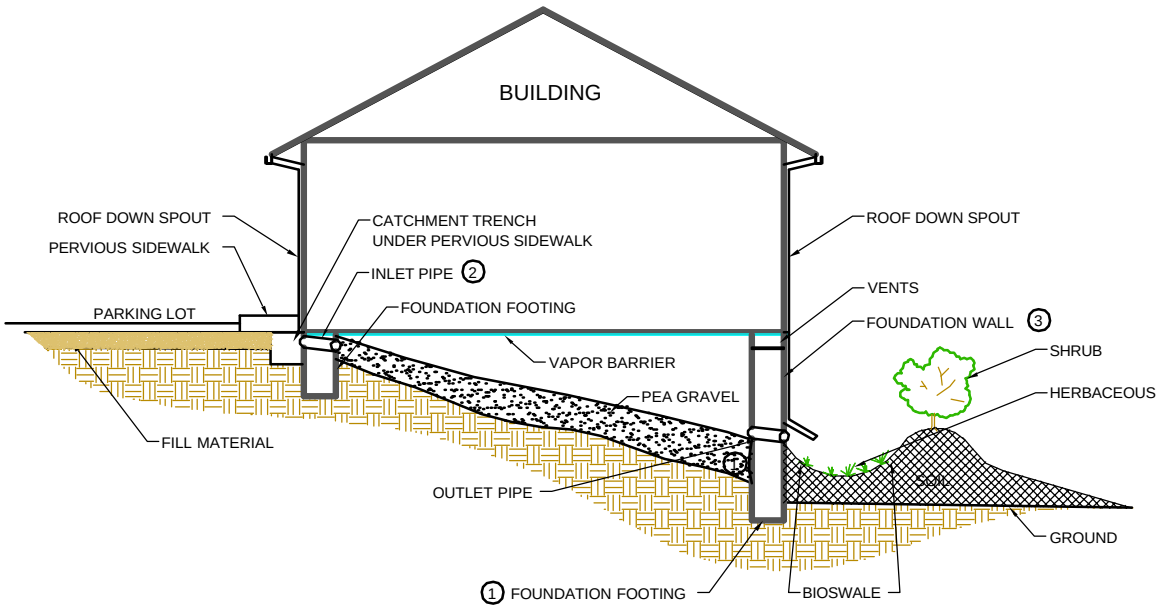


NOTE: DEPTH DEPENDENT ON FLOW

TYPICAL ROCK LINED CHANNEL

NOT TO SCALE

ROCK LINED CHANNEL



NOTES

1. Height of footing determined by water storage requirement.
2. Inlet/ outlet pipe size determined by flow requirement.
3. Foundation to provide maintenance access.

STORMWATER RUN OFF CONTROL DETAIL

N.T.S.

CROSS SECTION VIEW

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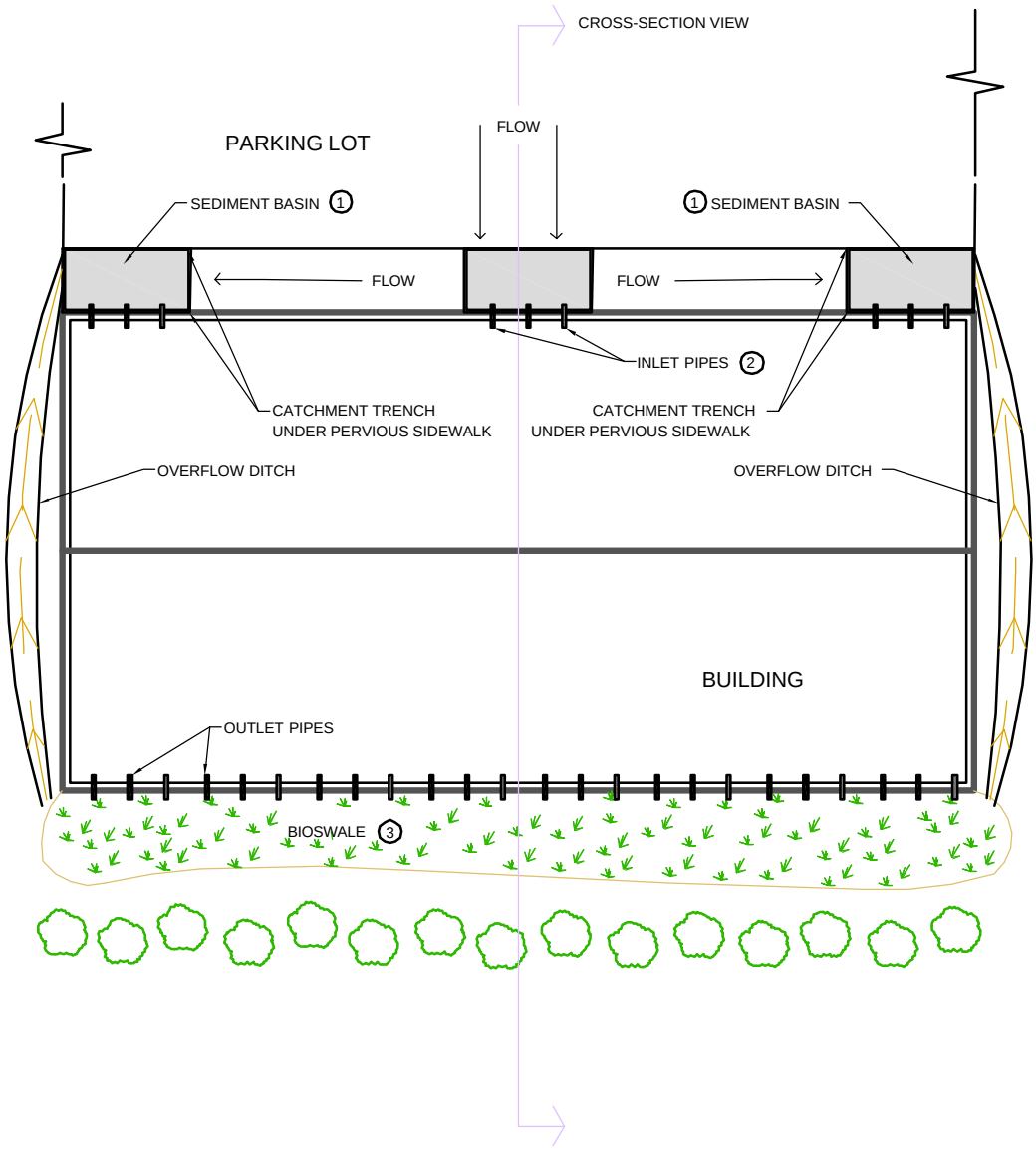
STORM WATER CONTROL DETAIL

STORMWATER RUN OFF CONTROL DETAIL

N.T.S.

PLAN VIEW



NOTES

1. Sediment basins will have maintenance access.
2. Number & size of inlet pipe to be determined by flow requirement.
3. Bioswale will be sized accordingly to the Western Washington Stormwater Management Manual.

SE GROUP

STORM WATER CONTROL DETAIL

APPENDIX H

ECONOMIC ANALYSIS

PETERSON ECONOMICS

AN ANALYSIS OF ROSARIO'S DEVELOPMENT ALTERNATIVES

PREPARED FOR OLYMPUS REAL ESTATE PARTNERS

September 8, 2005

Project Number 99

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MEMORANDUM REPORT

AN ANALYSIS OF ROSARIO'S DEVELOPMENT ALTERNATIVES

Olympus Real Estate retained Peterson Economics in June 2005 to complete an analysis of development alternatives for Rosario Resort. Specifically, Peterson Economics was asked to focus on the following:

1. **No Action Alternative** (i.e., what is the potential to continue to operate Rosario "as is").
2. **Action Alternative A** (i.e., what is the potential for a new, 250-room destination hotel on the property. This alternative is based on the original Resort Masterplan submitted to San Juan County in 2000).
3. **Action Alternative B / Preferred Alternative** (i.e., what is the potential for Rosario if developed according to the recommendations formulated by Peterson Economics in 2004, which focus on repositioning Rosario as an upscale resort including a boutique inn, a fractional club community, and associated whole-ownership vacation-home properties).

For each alternative, Peterson Economics examines the likely financial potential, ongoing operations potential, and impact on employment, property taxes, and sales taxes.

Remaining portions of this memo consist of a brief summary of Peterson Economics' qualifications to complete this assignment, followed by an analysis of each of the three development alternatives listed above.

PETERSON ECONOMICS' QUALIFICATIONS TO COMPLETE THE ASSIGNMENT

Peterson Economics is a real estate economics consulting firm which specializes in examining the market and financial feasibility of a variety of land use types, including proposed new:

- Large-scale destination resorts
- Master-planned residential communities
- Lodges and conference centers
- Golf courses and country clubs
- Fractional resorts

Although now based in Anacortes, Peterson Economics completes market and financial analyses for a large portion of all major new resorts now moving forward throughout the Pacific Northwest, California, Hawaii, Mexico, and the western mountain states. Among others, current and recent clients include:

- Morgan Stanley
- Goodfellow Brothers

- Lowe Enterprises
- Jeld-Wen
- Fairmont Hotels
- Beazer Homes
- Centex Destination Properties
- Olympus Real Estate
- Luecadia National
- Plum Creek Timber
- Sealaska Corporation
- Gilbane Properties

Since its inception in 2002, Peterson Economics has been retained to complete more than 110 assignments, including market and financial analyses for more than 50 major new destination resort projects as well as a variety of stand-alone golf courses, lodging facilities, residential communities, and retail centers.

Over the past 12 years, Jon Peterson has completed more than 80 major consulting assignments in the Northwest. Moreover, over the past several years, Peterson Economics has completed the market and financial analyses for the vast majority of major proposed new resorts in Washington and Oregon. Over the past three years alone, Peterson Economics has completed detailed market and financial analyses for:

1. The proposed redevelopment/repositioning of Rosario Resort, examining a wide variety of potential options (2004);
2. Four new second-home communities planned at Lake Chelan, including three new lakefront communities and Daybreak, a proposed new 1,200-acre private golf club community;
3. Lowe's new Suncadia Resort in Roslyn (for which Mr. Peterson has completed more than 40 analyses over the past six years, including the original market and financial analysis, a series of analyses used to finalize the development program for this successful new resort, and a series of economic benefit studies and employee housing studies required as part of the Environmental Impact Statement);
4. A proposed new 500-acre mountain resort community near Snoqualmie Pass;
5. A proposed new resort on the Yakima River;
6. A proposed new golf resort community overlooking vineyards south of Yakima;
7. A proposed new second-home community on the Columbia River southeast of Wenatchee;
8. Brasada Ranch, a new, 1,800-acre golf/spa/equestrian resort community now under construction in Central Oregon, with all 201 Phase 1 lots sold upon release in June 2005;
9. Lowe's new Harper Project, a proposed new 400-acre resort community in Central Oregon adjacent to Crosswater;
10. A proposed new 2,000-acre resort community near Bend, Oregon, proposed to include three golf courses and over 1,200 second-home units;
11. The new fractional component at Pronghorn in Central Oregon;

12. The proposed redevelopment/expansion of the Silver Mountain ski area in Kellogg, Idaho;
13. A proposed new high-end golf/fly-fishing/equestrian resort community in northwestern Montana;
14. A proposed new oceanfront golf resort in Westport, Washington, also proposed to include a major resort lodge and fractional component; and
15. A proposed new oceanfront and ocean-view resort on the Oregon Coast (possibly including up to two 18-hole golf courses and a resort lodge).

Through the course of completing these assignments, Peterson Economics has examined all of the Northwest's top resort markets in detail on numerous occasions, providing a unique historical perspective and depth of market knowledge to draw from. This has included detailed analyses (on numerous occasions) of more than:

1. 30 of the Northwest's top resort lodges (all major properties);
2. 20 of the Northwest's top resort golf courses (all of the top properties); and
3. 20 major resort communities with real estate components (all of the most notable communities).

Moreover, in order to complete this updated analysis for Olympus Real Estate, in July 2005, Peterson Economics completed a targeted update of residential market conditions in the San Juan Islands, on Fidalgo Island, and at Roche Harbor and Poets Cove in particular.

ANALYSIS OF THE "NO ACTION" ALTERNATIVE

Under the "No Action" Alternative, Rosario would continue to be operated under its current structure and with its existing facilities as long as economically justified. However, a number of factors combine to virtually ensure that Rosario Resort will not become a viable operation as currently structured:

1. **Site Location:** given its location, Rosario is challenging for most visitors to reach from the Seattle area. Most arrive by car/ferry, which typically takes about four hours door-to-door, and can take significantly longer during peak summer months. While this travel time is acceptable to leisure visitors on weekends, most group meeting planners prefer to book groups in resorts situated within 1.5 hours of downtown Seattle, without ferries or other complications to deal with.
2. **Seasonality:** while resort lodging establishments in the San Juan Islands enjoy strong summer-season demand, shoulder and winter seasons are very weak, and this seasonality is very challenging to overcome.
3. **Dysfunctional Design / Poor Quality Facilities:** as currently configured, Rosario is largely dysfunctional, with too much separation between rooms, meeting space, and the lobby/dining/spa facilities. Moreover, most existing facilities are dated, of poor quality, and poorly maintained. These shortcomings cannot be overcome without a very costly redesign/redevelopment.
4. **Resort Lodge Market Conditions in the Northwest:** through the course of completing numerous resort consulting assignments in the Northwest over the past

three years, Peterson Economics has examined essentially all of the Northwest's top resort lodging facilities (more than 30 facilities in total). Due to seasonality, the majority of resort lodging establishments in the Northwest generate only modest net operating income before debt service. Most operate at 50 to 70 percent average annual occupancy, with average daily rates of about $100 to $150. Typically, resort lodges operating at these levels run at break-even or slightly better than break-even levels, before covering any debt service. In fact, of the top 30 destination resort lodges in the Northwest, only one or two now generate a reasonable return on investment. Therefore, given the high costs of developing new resort lodges, virtually all resort lodging establishments in the Northwest *cannot* be justified by typical investment standards on a stand-alone basis. Notably, most of these facilities offer major competitive *advantages* over a new group-oriented lodging facility at Rosario Resort: they are closer to Seattle and they were custom designed to attract and accommodate groups. However, due primarily to seasonality issues, they are nevertheless struggling to cover ongoing operations.

As a result of these factors, Rosario Resort currently does not even generate enough revenue to cover ongoing costs of maintenance and operations. In fact, Olympus Real Estate reports that Rosario Resort has failed to generate sufficient revenues to fully cover annual costs of maintenance and operations in each and every year since Olympus acquired Rosario in 1997. Moreover, the prior owner also reported significant operating losses each year. As such, over the past eight years, Olympus has been forced to pour millions of dollars into Rosario merely to subsidize its operating losses. As such, it would not be reasonable to expect Olympus (or any other future owner) to continue to operate Rosario "as is" under the "No Action" Scenario.

As a result of these factors, the end result of following a "No Action" Scenario would almost certainly be a closure of Rosario. Under its current operating format, Rosario has no true market value (and actually represents more of a liability with a negative market value, if based on income stream alone). However, the underlying land has very substantial value as residential property, and the property could reportedly be redeveloped to include at least:

1. One or more premier waterfront homesites (one of which could include the Moran Mansion);
2. Several attractive water-view homesites (including the Woodland Cottage site);
3. The eight existing Hillside Condo units owned by Olympus; and
4. Several additional parcels in the Hilltop area.

As such, if the proposed Resort Master Plan (Action Alternative B) is not approved, it is likely that Rosario will simply close and be sold off as a limited number of estate parcels.

Under the current operating format, Rosario Resort employs the full-time-equivalent of about 145 to 150 people, with significant variation between peak summer-season employment (about 200 FTE's) and winter low-season employment (about 85 FTE's). The majority of these employees are full-time year-round residents of Orcas Island (including 13 of the 19 members of the management team). During the summer months, roughly 34 percent of all employees derive from off-island.

Rosario's total employment represents combined annual compensation of nearly $3.8 million (including compensation of independent spa therapists), which certainly has a profound positive impact on Orcas Island's economy (especially after considering indirect and induced impacts, including spending by both employees and resort guests at other commercial establishments around Orcas Island). In addition, Rosario pays property taxes of about $89,500 per year. It also generates room taxes of about $60,800 per year and additional sales taxes of about $234,000 per year from rooms revenues. Sales tax revenues from dining, spa, and other operations are also very substantial (over $100,000 per year).

Resort management also notes that total annual visitation to Rosario exceeds 65,000 people, and that this has a significant direct and indirect benefit to the Orcas Island economy, especially since many of these visitors are coming to Orcas Island specifically to come to Rosario (and would be unlikely to come otherwise). A high proportion of these visitors also patronize other shops and restaurants while on Orcas Island. Moreover, a significant portion of repeat visitation to Orcas Island – as well as ongoing real estate sales -- derives from visitors who initially came to Orcas Island to visit Rosario.

If Rosario closed and the property was simply redeveloped as a limited number of estate properties, condos, and other parcels discussed above, ongoing on-site employment would drop off drastically. In fact, ongoing "operations employment" could drop to near zero, with the exception being a limited amount of domestic service employment and maintenance employment associated with the upkeep of individual residential properties. However, expressed in full-time-equivalent terms, this would almost certainly total less than ten FTE jobs (and perhaps fewer than three). However, the conversion of the Moran Mansion to a private home and development of private homes on other sites would lead to some notable construction employment for several years, perhaps equating to about 126 FTEs, or perhaps an average of 42 FTEs per year for three years (assuming the mansion is renovated at a cost of $150 per square foot, other buildings are demolished, and a total of seven new homes are developed at an average construction cost of about $1.2 million per home). These new homes plus the mansion and condos would likely generate significant ongoing property tax revenues (perhaps a combined total of about $160,000 per year initially, growing to twice this level, expressed in 2005 dollars, upon completion of the new homes and renovations). However, with the exception of initial sales taxes paid during unit construction/renovation, the new units would not generate any significant ongoing sales tax revenues or bed tax revenues. Thus, the long-term impact on the Orcas Island economy would be the loss of several hundred ongoing operations jobs and a net decrease in tax revenues.

It is also critical to discuss the potential impact of the closure of the resort on Rosario Utilities, (the privately-owned utility company serving the Resort, Moran State Park, and the North Rosario Activity Center) because Rosario Resort currently covers the majority of ongoing maintenance and operating costs for this utility. Peterson Economics contacted Rosario Utilities' General Manager Chris Vierthaler on August 24, 2005, and asked her to estimate the likely impact on water and sewer rates for existing users if the Resort were to close and a total of only 14 homes were developed/redeveloped on the site.

Rosario Utilities' estimates are summarized as follows:

Water

Based on current $337,000 annual revenue, including surcharge, and the loss of $105,600 revenue from the resort, modified by an increase in 14 homes, other customers would be affected as follows:

1. 65% increase in water rates, based on current $337,000 annual revenue including surcharge.
2. Average retail bill increasing from $67.00 to $110.50.
3. Average wholesale customer bill increasing from $41.25 to $68.00.
4. The utility would also have to buy back the 44 connections that Rosario purchased for expansion (resale of some of these connections could slightly alter rates).

Sewer

Based on sewer flow volume and $115,000 current annual revenue:

1. Residential/commercial sewer rates would increase from $42.00-$50.00 per month to about $100.00 per month; and
2. Water treatment plant backwash and Moran State Park rates would increase from about $1,000 per month to about $2,500 per month (shown in increased water rates above and increasing park fees for campers and locals).

However, Rosario Utilities also noted that the water rates summarized above do not take into consideration cost savings on chemicals and supplies based on reduced production. Clearly, however, the closure of Rosario (rather than a repositioning as a new, viable resort) would have a significant impact on both water and sewer rates for local users.

ANALYSIS OF ACTION ALTERNATIVE A (NEW 250-ROOM HOTEL)

It would likely cost at least $35 million to $50 million to redevelop the existing resort as a new, upscale destination resort hotel with 250 guestrooms and a quality conference center. This facility could offer attractive new guest rooms, a much more desirable layout, quality meeting space, and other appealing attributes. However, given the subject site location and access issues, the region's seasonality, and the weak lodging market in the Northwest, such a facility would be very unlikely to generate more than about $2 million per year in net operating income, and ongoing net operating income could potentially be much less. Most developers would not be interested in developing this facility unless it was capable of generating at least a 20 percent cash-on-cash Internal Rate of Return (or perhaps $10 million to $15 million per year in net operating income upon stabilization). Moreover, no typical lenders would be interested in making a loan for a developer to develop this type of lodge in this type of market (where the likely return on investment would be less than five percent).

As such, Action Alternative A is economically non-viable. If the site were sold to another entity interested in this alternative, it would likely end the same way as the "No Action" Alternative, with the hotel closing within a short period of time and the site sold off in smaller pieces to a variety of individual residential buyers (with the same impacts on jobs, taxes, and the utility company as discussed above).

ANALYSIS OF ACTION ALTERNATIVE B (THE PREFERRED ALTERNATIVE)

While resort lodging market conditions in the San Juan Islands are exceptionally poor, residential real estate market conditions are exceptionally strong, and they have grown considerably stronger over the past year. The islands' residential market is driven by its strong appeal as a second-home, pre-retirement and retirement destination. Moreover, while the islands appears to offer strong potential for a new fractional resort, none have been developed to date (with the exception of the successful new Poets Cove Resort in the Canadian Gulf Islands), and no others are proposed or appear likely to move forward (though Deer Harbor Resort will apparently be repositioned as a timeshare resort, which would not compete with or overlap with the much more upscale and second-home oriented positioning of Rosario).

Based on these factors, instead of utilizing the prime site at Rosario for a large-scale, group-oriented hotel, Peterson Economics recommends seeking to maximize the value of this point of land by developing it as a small-scale, high-end second-home community anchored by an ultra-high-end inn occupying a new wing in the renovated Moran Mansion. Other components would include a mixture of fractional and whole-ownership second-home units. We believe this use maximizes the value of this prime site, and we believe it also does more to add value in neighboring parcels.

In order to generate strong interest in this new second-home resort community and establish a high-end market positioning, we recommend establishing the Moran Mansion as the centerpiece of this new Resort, following a complete renovation of the Mansion. We envision a thorough renovation, resulting in a facility offering the following components in an early-20th-century motif: (1) a dramatic lobby; (2) a high quality, fine dining restaurant and attractive bar; (3) a high-end spa and fitness center; (4) a large, resort-style indoor/outdoor swimming pool and hot tub; and (5) approximately 21 high quality guest suites in the proposed Mansion expansion. Other rooms in the Mansion could also be renovated/improved to the degree necessary (the organ room, the meeting room, library rooms, etc.).

In mid-2004, Peterson Economics also completed a detailed analysis of likely future construction and operations employment at Rosario if the preferred scenario is adopted. Initial construction employment was projected at 53 full-time-equivalent (FTE) jobs in Year 1, 261 FTE jobs in Year 2, 148 FTE jobs in Year 3, 47 FTE jobs in Year 4, and 16 FTE jobs in Year 5 (representing over $20 million in compensation altogether). Likewise, operations employment was projected to stabilize at roughly 223 ongoing FTE jobs, representing over $7.28 million in annual ongoing operations employee compensation (expressed in 2004 dollars). Peterson Economics has not completed a revised employment analysis. However, operations employment would likely be very similar to what was projected in mid-2004 (given the identical unit counts, identical unit mix, etc.), while construction employment would likely be notably higher (due to

the increase in assumed unit construction costs per square foot). Peterson Economics based prior construction cost projections off prior estimates provided by Roche Harbor for its new cottage product. In 2004, Roche Harbor was forecasting construction costs of $175 per square foot; however, over the past 12 months, actual costs have totaled about $250 per square (excluding furnishings), providing very clear guidance for likely costs at Rosario.

Thus, while the "No Action" Alternative would lead to a dramatic reduction in employment, the proposed repositioning of Rosario under Action Alternative B would create a large number of initial construction jobs, and then maintain a viable, ongoing operations employment base equal to more than 220 ongoing FTE jobs.

Under Action Alternative B, Rosario would also generate very significant ongoing tax revenues, including property taxes, lodging taxes, and sales taxes. Based upon the components proposed, the total assessed value of Rosario and its whole-ownership and fractional units would likely be $125 million to $150 million by Year 6 or Year 7 (expressed in 2005 dollars). Moreover, if the marina is expanded and improved as proposed, the total assessed value could be even higher. Any real appreciation in property values would also lead to an increase in assessed value. However, even before considering the future value of the marina and before considering any real appreciation in property values, assuming a tax rate of 1.25 percent of assessed value, expressed in 2005 dollars, total combined property tax revenues would likely stabilize at about $1.6 million to $1.9 million per year – dramatically higher than what Rosario currently generates.

The new resort would also pay lodging taxes and sales taxes on all paid overnight stays, including stays in the hotel and rentals of both whole-ownership and fractional units. Expressed in 2005 dollars, total gross lodging revenues are expected to reach about $1.6 million per year from the 21 lodge rooms, $1.6 million per year from rentals of fractional units, and $960,000 per year from rentals of whole-ownership units. Thus, expressed in 2005 dollars, total lodging revenues are expected to stabilize at about $4.2 million per year. Based on the current bed tax of 2.0 percent and sales tax of 7.7 percent, this would represent about $410,000 per year in ongoing taxes on lodging revenues.

Sales tax revenues would also be very substantial, particularly during initial construction and redevelopment. Initial redevelopment / project amenity expenditures are expected to total about $29 million, while residential construction is expected to total approximately $50 million, and virtually all of these expenditures would be subject to sales taxes (potentially representing about $6 million in sales tax revenues, expressed in 2005 dollars). Notable additional sales tax revenues would be generated by the spa, restaurant, and other commercial components of the Resort on an ongoing basis, equating to several hundred thousand dollars per year.

The new Resort would also provide a significant benefit to the utility company (by continuing to cover the majority of ongoing costs in a manner similar to the existing Resort).

COMPARISON OF ECONOMIC IMPACTS

The "No Action" Alternative would almost certainly result in the closure of Rosario and the redevelopment of the site into a limited number of private residential estates. As a result, virtually all ongoing jobs currently supported by Rosario would be eliminated, and very few new jobs would be created. Ongoing tax revenues (from property taxes, sales taxes, and bed taxes) would also be very limited. These changes would have a severe impact on Orcas Island's economy. For the reasons discussed above, Action Alternative A would also likely have the same end result.

In stark contrast, under Action Alternative B (the preferred scenario), Rosario would generate hundreds of initial jobs during project construction, and ongoing operations jobs would likely total more than 220 FTE positions. Moreover, ongoing tax revenues would be very substantial, as outlined above. **Table 1** presents a summary of anticipated employment, total compensation, and tax generation under each alternative, along with potential impacts on the utility.

Table 1: Actual or Projected Impacts (Jobs in FTEs and Dollars in 2005 $'s)

	Current Operation	No Action Alternative	Action Alternative A[1]	Action Alternative B
Initial Construction Employment	N.A.	126 FTE's	126 FTE's	525+ FTE's
Total Stabilized Operations Employment	145-150 FTE's / Yr.	Less than 10 FTE's / Yr.	Less than 10 FTE's / Yr.	223 FTE's / Yr.
Ongoing Annual Stabilized Operations Compensation	$3.8 million	Less than $250,000	Less than $250,000	$7.3 million
Property Taxes / Year Generated	$89,500	$300,000	$300,000	$1.6-$1.9 million
Sales & Bed Taxes / Year Generated	$400,000+	Negligible Ongoing Impact	Negligible Ongoing Impact	$600,000+
Net Impact on Utility (change from current impact)	N.A.	Rates Soar due to Loss of Primary Customer	Rates Soar due to Loss of Primary Customer	No Notable Impact due to Addition of Units to Replace Units Lost

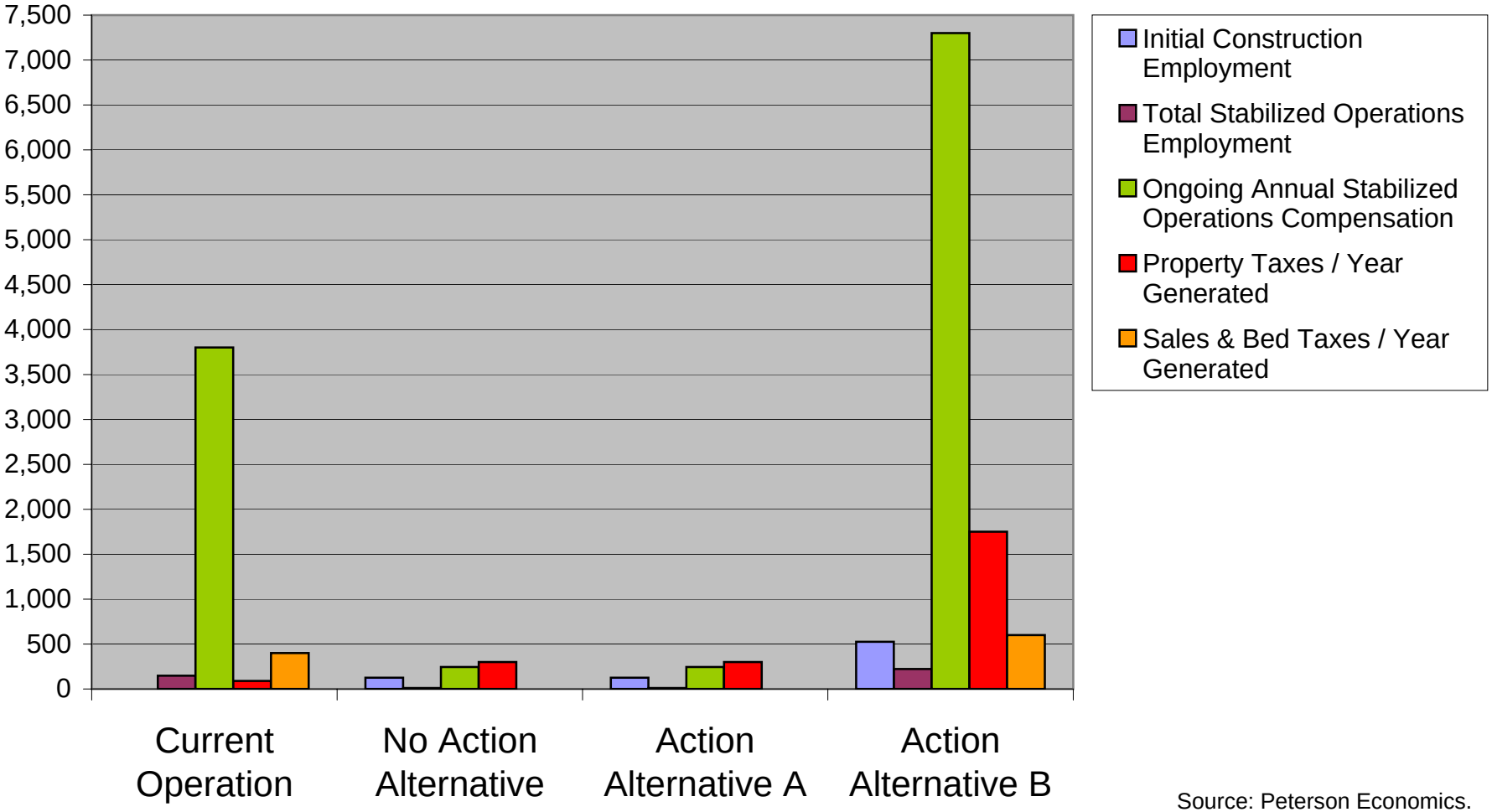
1/ Assumes end result would be similar to No Action Alternative due to lack of support for a new 250-room hotel.

Figure 1 presents these impacts graphically.

In addition to these direct benefits, Orcas Island and San Juan County would also realize significant indirect and induced benefits, as resort guests and employees would patronize other

commercial establishments in the area and engage in other activities to help bolster the health of the region's economy.

Figure 1: Actual or Projected Impacts
(Jobs in FTE's and Dollars in Thousand 2005 $'s)



Source: Peterson Economics.

APPENDIX I

SAMPLE BEST MANAGEMENT PRACTICES

Appendix I

Sample Best Management Practices for the Rosario Resort Master Plan

This appendix contains definitions, descriptions, and drawing typicals of Best Management Practices (BMPs) used on construction projects to control erosion and minimize impacts to water quality. These BMPs are widely used in construction projects and are often written into permit requirements, typically the National Pollutant Discharge Elimination System (NPDES) or other water quality related permits.

The intent of this appendix is to provide a sample of BMPs that are likely to be implemented during the construction of Rosario Resort under either Action Alternative. The BMPs contained in this document are not intended to be a complete list. Additional BMPs may be implemented that are not described here such as, hydroseeding or infiltration/detention facilities. The approved construction permits should contain a complete list and details of the appropriate BMPs for the redevelopment of Rosario Resort.

Each BMP contains a definition, a brief description of where it is applicable, and how to construct and maintain the BMP. Additionally, a sample drawing is included to provide a visual description of the BMP. The following BMPs are described in detail:

- Silt Fence (see Page 2)
- Straw Bale Sediment Barrier (see Page 4)
- Water Bars (see Page 6)
- Drainage Ditch/ Swale (see Page 8)
- Rock Check Dam (see Page 10)
- Sediment Trap (see Page 12)
- Outlet Protection (see Page 14)
- Straw Mulch (see Page 16)
- Erosion Control Blankets (see Page 18)

Silt Fence

DEFINITION

A low fence made of filter cloth and fencing material.

PURPOSE

To filter runoff water prior to discharge.

APPLICABILITY

Any construction site or other site of disturbance where the danger of discharge of sediment-laden water exists.

PLANNING CRITERIA

A filter fence can be substituted for a filter berm at approximately equal cost, but the filter fence is easier to maintain and remove. Care must be taken to insure that all runoff water must pass through, not over, under or around, the filter cloth. This only applies to sites which will not be subjected to significant hydrostatic pressure or to vehicular traffic.

METHODS AND MATERIALS

The filter fence to be used during the period from May 1 to October 15 should be designed to filter the design storm without overtopping, collapsing, becoming sedimented in, or being skirted by runoff flows.

The fence should be constructed with T-section fence posts and "hog-wire" (4"x4" or 6"x6" wire mesh) or "chicken wire" of # 14 or heavier gauge wire.

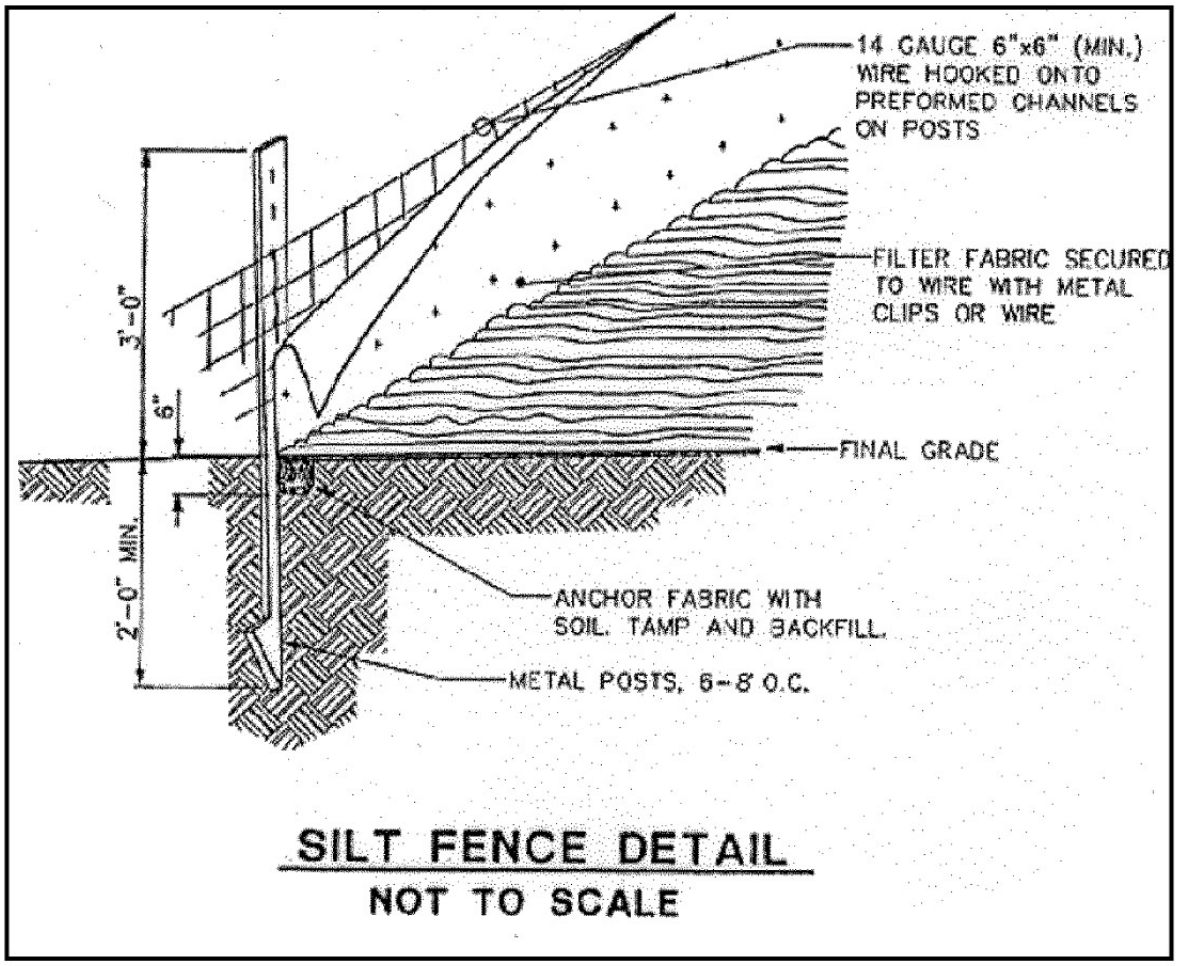
A trench should be excavated at the uphill base of the fence to a depth of at least 6 inches.

Filter cloth (Mirafi 140 or equivalent) should be draped over the wire fencing material and lowered into the trench.

The trench should be backfilled to grade and compacted.

MAINTENANCE

Inspect periodically and after each storm for damage, and repair or replace damaged sections. Remove sediment accumulations when the capacity of the filter is impaired.



SILT FENCE DETAIL

NOT TO SCALE

SE Group®

SILT FENCE

Straw Bale Sediment Barrier

DEFINITION

Temporary berms, diversions, or other barriers constructed of baled straw.

PURPOSE

Straw bale sediment barriers retain sediment on site by retarding and filtering storm runoff.

APPLICABILITY

The barriers are used at storm drain inlets, across minor swales and ditches, as training dikes and berms, along property lines, and for other applications where the structure is of a temporary nature and structural strength is not required.

PLANNING CRITERIA

The following information applies to the installation of straw bale sediment barriers.

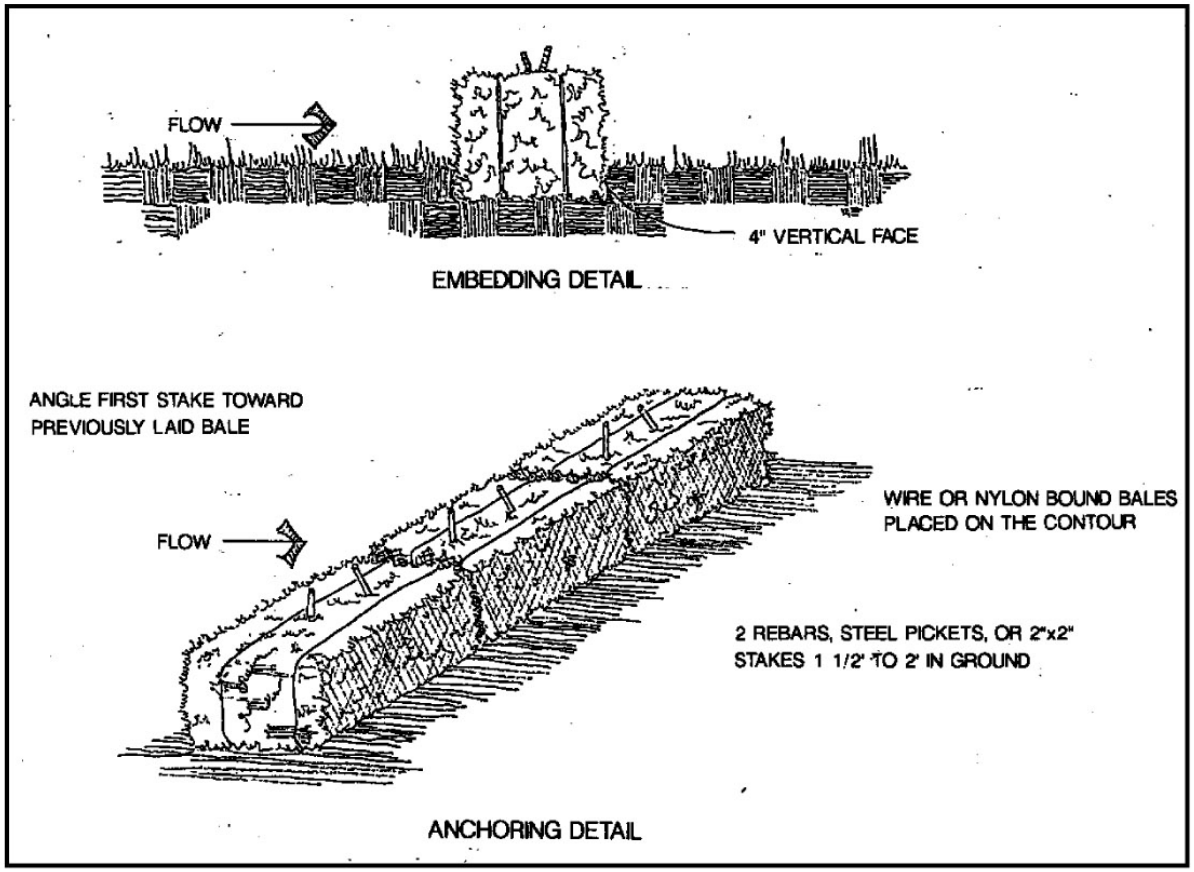
The service life of the barrier can be prolonged by using wire or nylon-tied bales, rather than twine-tied bales.

Bales should be laid on their sides and staked in place. At least two wooden or metal stakes should be driven through each bale and into the ground at least one foot. The stakes should be flush with the top of the bale and should not protrude dangerously. The first stake should be angled toward the previously placed bale and driven through both the first and second bale.

Piping is a major cause of failure. The possibility of piping failure can be reduced by setting the straw bales in a trench excavated to a depth of at least 6 inches and by firmly tamping the soil along the upstream face of the barrier.

MAINTENANCE

Bales are a target for vandals and frequent inspection may be required. They should be replaced when rotten or disintegrating. Remove deposited sediment from bale structure after each storm.



SE Group®

SEDIMENT BARRIER

Water Bar

DEFINITION

A runoff interceptor constructed at the top, middle, or base of cut or fill slopes.

PURPOSE

To divert overland flow away from slopes and reduce uninterrupted slope length.

APPLICABILITY

All slopes, which may receive runoff from upslope areas.

PLANNING CRITERIA

Water bars should be placed to intercept all runoff flow from above the cut and fill slopes and upon benches on large slope faces to prevent collected runoff from flowing onto slope faces below. Diversion outlet must be to heavily vegetated or artificially stabilized areas or to a downdrain, chute or flume. Diverted runoff should not overtop the water bar.

General criteria include:

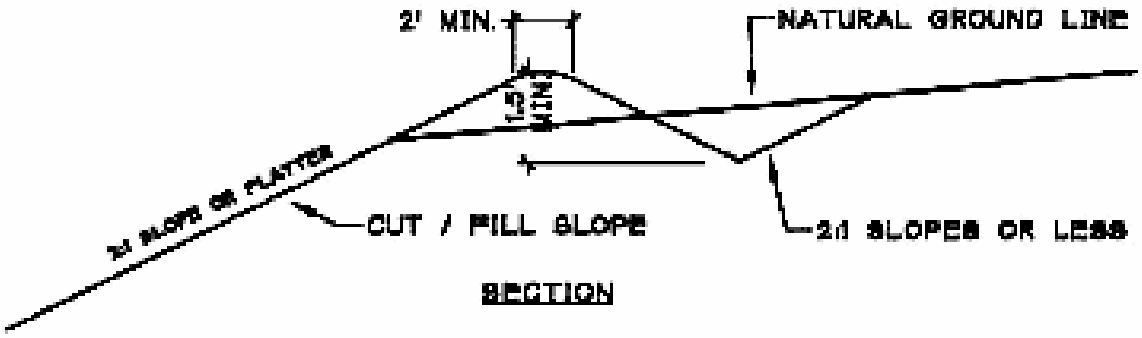
- Height - 1.5 feet or greater.
- Top Width - 2 feet.
- Side Slopes - 2:1 or flatter.
- Compaction - Should be 85 percent of maximum density.
- Grade - Dependent upon topography--should be positive.

METHODS OR MATERIALS

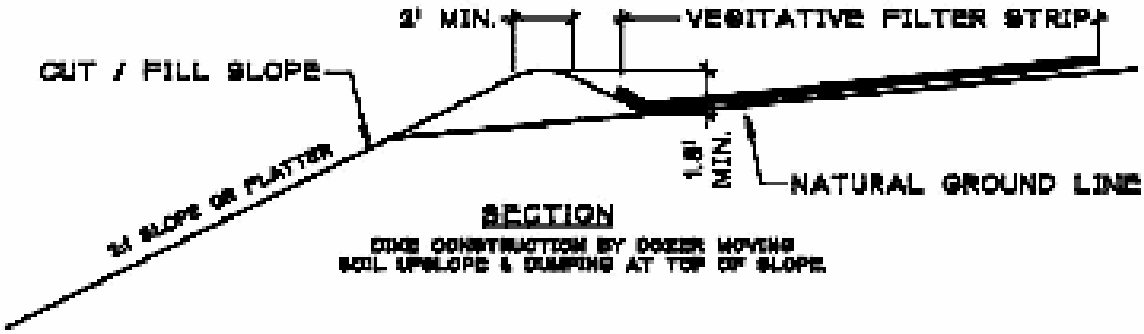
The water bar consists of a trench and a dike. The trench should be constructed using a dozer blade or hand tools. The dike should be compacted as specified above. In wooded areas where top of slope access is limited and anticipated interception of runoff will produce very small flows, water bars can be constructed as a dozer finishes the slope by carrying soil upslope and dumping it at crest. Compaction is sacrificed in this instance. A larger dike is necessary to partially compensate for lack of compaction.

MAINTENANCE

Inspect after each major storm to locate any damaged areas. Repair should be completed before next storm. Any channel obstructions should be removed.



SECTION



SECTION

DIKE CONSTRUCTION BY DOZER MOVING SOIL UPSLOPE & DUMPING AT TOP OF SLOPE.

NOTE: DIVERSION DIKE TO BE CONSTRUCTED AT THE TOP OF CUT OR FILL SLOPE. OUTLET TO A STABILIZED AREA.

WATER BAR

SCALE N.T.S.

WATER BAR

SE Group

Drainage Ditch/ Swale

DEFINITION

An excavated trench that captures stormwater runoff.

PURPOSE

Conveys stormwater runoff to a sediment trap, catch basin, detention basin, or other treatment facility.

APPLICABILITY

All slopes, which may receive runoff from upslope areas.

PLANNING CRITERIA

Ditches should be placed to intercept all runoff flow from above upslope areas.

Diverted runoff should not overtop the ditch.

General criteria include:

- Height - 1.5 feet or greater.
- Top Width - 2 feet.
- Side Slopes - 2:1 or flatter.
- Compaction - Should be 85 percent of maximum density.
- Grade - Dependent upon topography--should be positive.

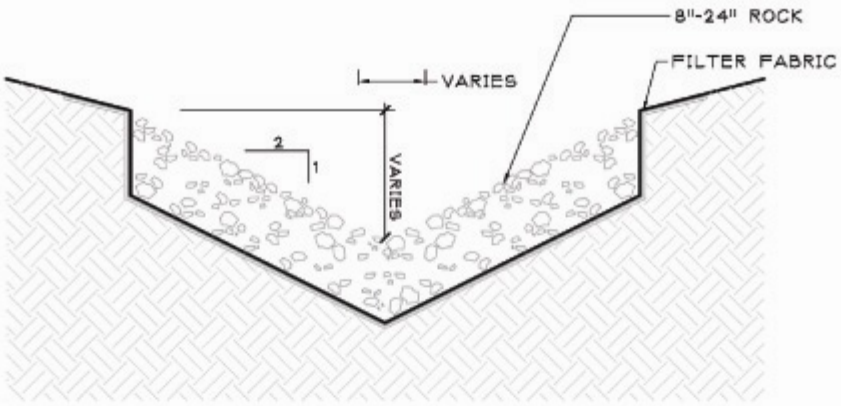
For grades in excess of 2 percent or large flows, the channel requires mechanical stabilization with a concrete, asphalt or riprap lining. Flows concentrated by the ditch should be conveyed from the slope using chutes, flumes or pipe drops.

METHODS OR MATERIALS

The ditch should be constructed using a back hoe or track hoe with a 1 to 2 foot wide blade. On shallow slopes, ditches can be seeded and covered with erosion control blankets to create a grass-lined channel. On steep slopes the ditch should be lined with large rock or quarry spalls (4 to 8 inches) to reduce water velocity.

MAINTENANCE

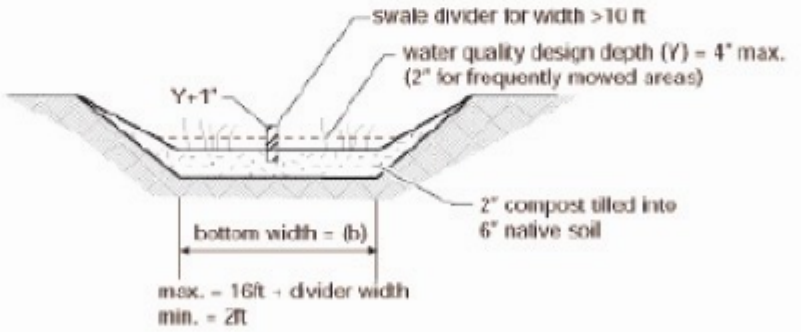
Inspect after each major storm to locate any damaged areas. Repair should be completed before next storm. Any channel obstructions should be removed.



NOTE: DEPTH DEPENDENT ON FLOW

TYPICAL ROCK LINED CHANNEL

NOT TO SCALE



Typical Swale

Source: Stormwater Management Manual for Western Washington (Ecology, 2005).

Rock Check Dam

DEFINITION

Small dam or drop structure constructed in an open channel or drainageway.

PURPOSE

Used to reduce or prevent excessive bank and bottom erosion by reducing the gradient and/or runoff velocity in drainageways, swales, or channels.

APPLICABILITY

As required in channels or drainageways to reduce excessive grades and velocities and prevent erosion.

PLANNING CRITERIA

Design by an engineer generally is required.

Overall structures may be constructed of concrete, metal, rock, gabions, wood, or other durable material.

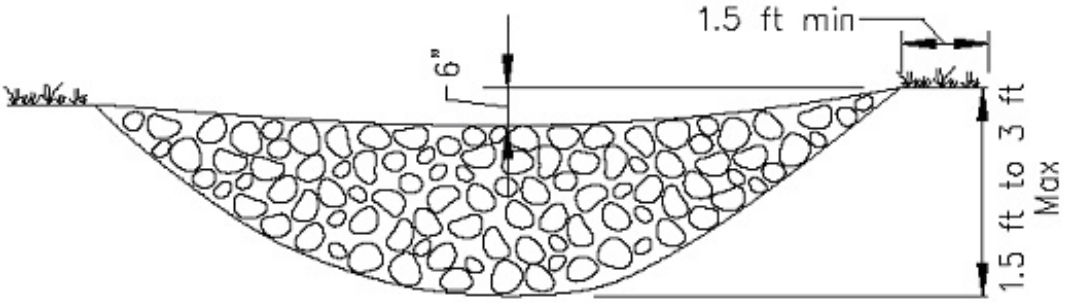
Check dams should be located in a reasonably straight channel section.

Site and foundation conditions and aesthetic considerations are important factors in construction material selection.

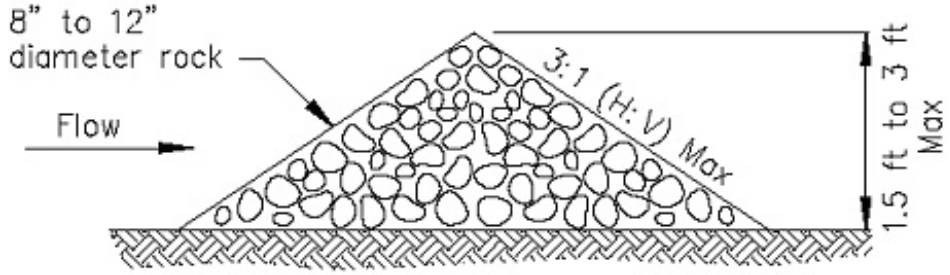
Design channel grade above and below the structure should be analyzed to determine if erosion or sediment deposition will be a problem.

MAINTENANCE

Muck out the upgradient side of the check dam when sediment accumulation exceeds half of the height of the check dam.



ELEVATION



TYPICAL ROCK CHECK DAM SECTION

ROCK CHECK DAM
NOT TO SCALE

SE Group®

Rock Check Dam

Sediment Trap

DEFINITION

A small storage or detention area without special inlet and outlet controls or specific side slopes.

PURPOSE

Sediment traps are used to detain construction runoff long enough to allow the layer size sediment particles to settle out before the runoff is released to downstream areas.

APPLICABILITY

Traps may be used at the toe of embankments where temporary and permanent slope drains discharge, at the lower end of waste areas or borrow pits, and at the downgrade end of a cut section where soil saturation will have no adverse effect.

PLANNING CRITERIA

Sediment traps are constructed by excavating a depression, using a natural depression, or by creating an impoundment with a low head dam. By using natural depressions and the existing topography for storage areas and treating only onsite runoff, it is often possible to construct several small traps and avoid construction of the more expensive large traps (basins).

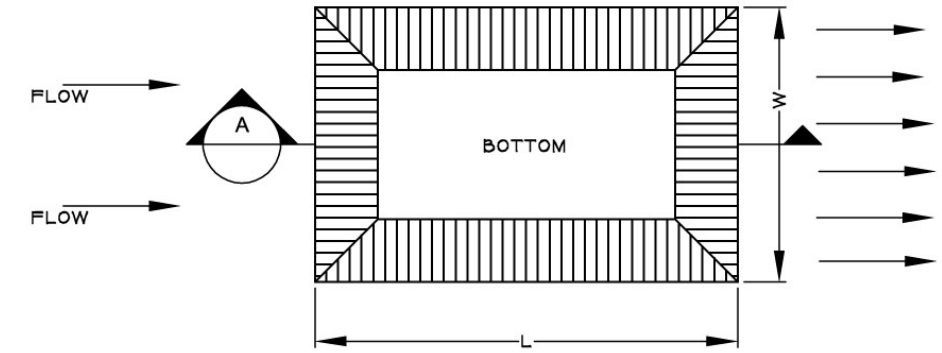
In designing a sediment trap in the field, the project engineer should estimate the size of trap required to remove sand size sediment and accommodate the expected volume of sediment to be trapped. If the trap is intended to trap smaller particles, a hydraulic engineer should be consulted for design information.

METHODS AND MATERIALS

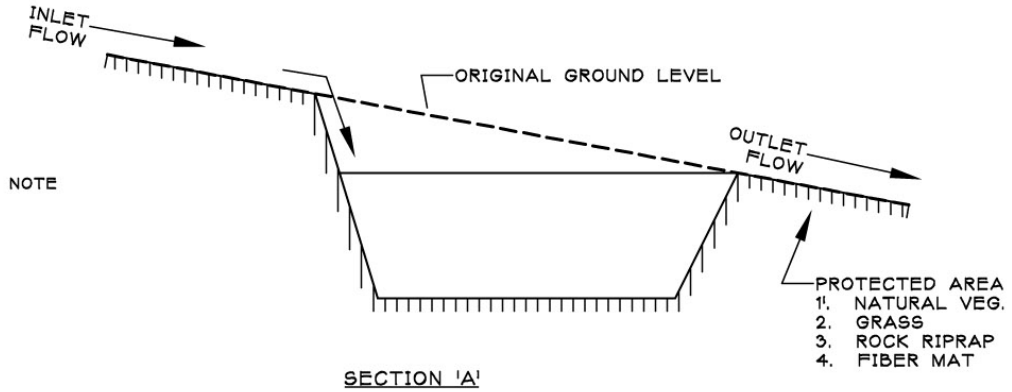
Materials for construction of sediment traps vary depending on type. Natural or excavated depressions require no specific materials other than bare soil. Sediment traps should be located outside the slope stake limits and should be built prior to the start of excavation or removal of existing vegetation. If a trap is constructed by excavation, it may be necessary to remove surrounding vegetation so that equipment can remove sediment from the trap.

MAINTENANCE

Inspection and maintenance should be performed regularly as traps may fill up during one storm. Timely removal and safe disposal of accumulated sediment is necessary to maintain storage capacity and ensure sediments are not transported back into work areas or waterways. When the sediment trap is no longer needed, the area should be restored by shaping and seeding.



PLAN VIEW



SECTION 'A'

SEDIMENT TRAP

SCALE: N.T.S.

SEDIMENT TRAP.DWG

SE Group®

SEDIMENT TRAP

Outlet Protection

DEFINITION

A rock-lined apron at the discharge outlet of a drainage facility.

PURPOSE

To reduce the erosive energy and velocity of runoff at discharge outlets of drainage systems.

APPLICABILITY

To be used on the discharge outlet of all drainage facilities as required to prevent erosion.

PLANNING CRITERIA

Formal design is not normally required.

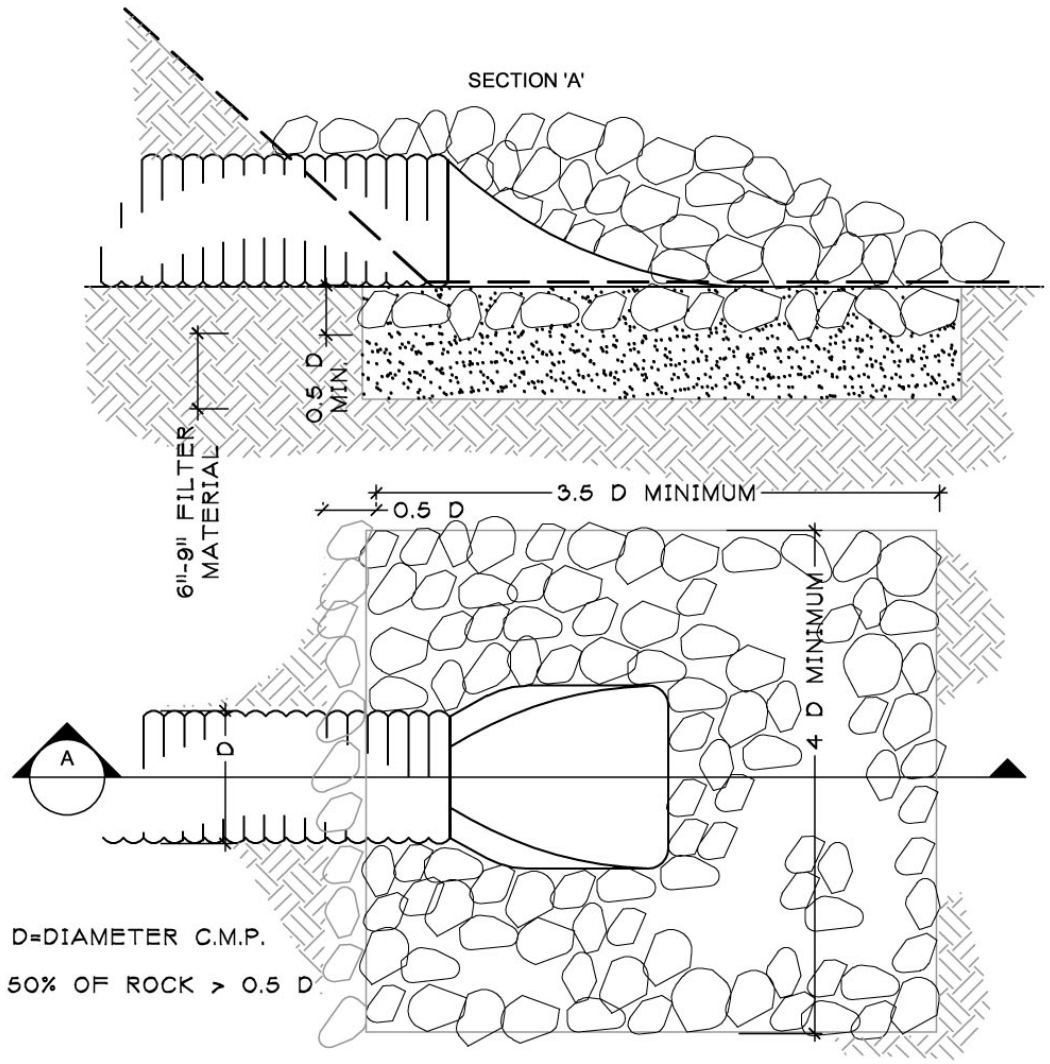
Configuration should be rectangular with minimum dimensions of all sides equal to four times the outlet pipe diameter.

50 percent of the rock should be larger than 0.5 times the culvert diameter.

Rock should be placed over a 6-inch to 9-inch layer of filter materials.

MAINTENANCE

Inspect for damage and repair periodically.



ROCK DISCHARGE APRON

SCALE : N.T.S.

SE Group®

ROCK APRON DETAIL

Straw Mulch

DEFINITION

The application of staple straw as a protective cover over bare or seeded soil.

PURPOSE

To reduce erosion and to provide a mulch for aiding revegetation.

APPLICABILITY

Used on slopes or areas which have been seeded or which may be subject to wind or water caused erosion. Straw mulch may require matting, crimping, or other methods to hold it in place.

PLANNING CRITERIA

Straw mulch provides organic matter as it breaks down and is incorporated into the soil. If applications are too heavy, reduction of soil nutrient levels, especially nitrogen, may occur during the period of decomposition. Therefore, application rates of both the straw mulch and the fertilizer specified should be strictly adhered to.

Straw mulch forms a loose layer when applied over a loose soil surface. To protect the mulch from wind drifting and water damage, it must be stabilized by covering it with netting such as jute, by punching it into the soil with a spade or roller, or by spraying it with a tacking agent.

Straw mulch should cover the entire seeded area or exposed slope. The mulch should extend into existing vegetation or stabilized areas on all sides to prevent wind or water damage, which may start at the edges of the mat.

METHODS AND MATERIALS

On small slopes, straw mulch should be applied by hand broadcasting to a uniform depth of 2-3 inches. On larger slopes, straw can be blown onto the slope to achieve a uniform cover of 2-3 inches. The straw fibers should be applied to form a uniform mat of loose straw through which approximately 5 to 10 percent of the original ground surface can be seen. No large clumps of unscattered straw should exist after application. Matting is to be used on large, steep areas, which cannot be punched with a roller. Jute or wood excelsior on plastic netting should be applied over unpunched straw.

Application rate should be 2 tons of straw per acre, which will provide a 2-3 inch covering of straw on the ground surface. The maximum depth should be 3 inches except on soils subject to frost heaving where 4 inches should be applied. Straw should be clean rice, barley or wheat straw. Fibers should not be chopped or ground to reduce the fiber length.

Stabilization of the mulch mat should be by one of the following methods.

Hand Punching - used on small sites, sites with much rock and stone on the surface, sites with slopes which are steeper than 3:1, or sites which have been wattled. Care must be taken not to

damage wattling or planted vegetation. A spade or shovel should be used to punch the straw into the slope until all areas have straw standing perpendicularly to the slope and embedded at least 4 inches into the slope. The bunches of straw should resemble the tufts of a toothbrush.

Roller Punching - used on large, gently sloping sites without significant outcroppings of rock and stone. Roller punching should not be used on sites, which have been wattled unless adequate space between lines of wattling is available, or on vegetatively planted sites. A roller equipped with straight studs not less than 6 inches long, from 4 to 6 inches wide, and approximately 7/8 inch thick, will best accomplish the desired effect. Studs should stand approximately 8 inches apart and should be staggered. All corners should be rounded to prevent withdrawing the straw from the soil. Rollers should not be used to punch straw on slopes, which have been wattled or vegetatively planted. Vegetative planting may be conducted following roller punching.

Crimper Punching - specially designed straw crimping rollers are available for use wherever roller punching can be used. These crimpers consist of serrated disk blades set 4 to 8 inches apart, which force straw mulch into the soil. Crimping should be done in two directions with the final pass conducted across the slope rather than up and down it.

Tacking Agent - to be used on any type of site, but best used only on very stony or rocky soils or small, steep slopes. Two hundred gallons per acre of asphaltic tacking agent or its equivalent should be applied over the straw mulch. Agents which are neutral or nearly neutral in color and of demonstrated effectiveness in the soils and climate of the area in question are acceptable.

EFFECTIVENESS

Straw mulches react similarly to hydromulches, as they break down fairly rapidly. However, straw is twice as effective and at about half the cost of hydromulches. Sediment generation reduction from straw mulch without vegetation is from 90-95 percent for a few months, but drops off to 70-90 percent in six months, and further to 40-60 percent in two years, and 10-30 percent after that. Nutrient reductions are estimated at 60-80 percent for a few months, 50-70 percent in six months, 20-50 percent up to two years and 0-10 percent beyond two years

Erosion Control Blankets

PURPOSE

Erosion control nets and blankets are intended to prevent erosion and hold seed and mulch in place on steep slopes and in channels so that vegetation can become well established. In addition, some nets and blankets can be used to permanently reinforce turf to protect drainage ways during high flows. Nets are strands of material woven into an open, but high-tensile strength net (for example, jute matting). Blankets are strands of material that are not tightly woven, but instead form a layer of interlocking fibers, typically held together by a biodegradable or photodegradable netting (for example, excelsior or straw blankets). They generally have lower tensile strength than nets, but cover the ground more completely. Coir (coconut fiber) fabric comes as both nets and blankets.

CONDITIONS OF USE

Erosion control nets and blankets should be used:

1. For permanent stabilization of slopes 2H: 1V or greater and with more than 10 feet of vertical relief.

2. In conjunction with seed for final stabilization of a slope, not for temporary cover. However, they can be used for temporary applications as long as the product is not damaged by repeated handling. In fact, this method of slope protection is superior to plastic sheeting, which generates high-velocity runoff (see Section D.4.2.3).

3. For drainage ditches and swales (highly recommended). The application of appropriate netting or blanket to drainage ditches and swales can protect bare soil from channelized runoff while vegetation is established. Nets and blankets also can capture a great deal of sediment due to their open, porous structure. Synthetic nets and blankets can be used to permanently stabilize channels and may provide a cost-effective, environmentally preferable alternative to riprap.

DESIGN AND INSTALLATION SPECIFICATIONS

1. See Figure D.4.B and Figure D.4.C for typical orientation and installation of nettings and blankets.

   Note: Installation is critical to the effectiveness of these products. If good ground contact is not achieved, runoff can concentrate under the product, resulting in significant erosion.

2. With the variety of products available, it is impossible to cover all the details of appropriate use and installation. Therefore, it is critical that the design engineer thoroughly consults the manufacturer's information and that a. site visit takes place in order to insure that the product specified is appropriate.

3. Jute matting must be used in conjunction with mulch (Section D.4.2.1). Excelsior, woven straw blankets and coir (coconut fiber) blankets may be installed without mulch. There are

many other types of erosion control nets and blankets on the market (though not authorized here) that may be appropriate in certain circumstances. Other types of products will have to be evaluated individually. In general, most nets (e.g., jute matting) require mulch in order to prevent erosion because they have a fairly open structure. Blankets typically do not require mulch because they usually provide complete protection of the surface. Purely synthetic blankets are allowed but shall only be used for long-term stabilization of waterways. The organic blankets authorized above are better for slope protection and short-term waterway protection because they retain moisture and provide organic matter to the soil, substantially improving the speed and success of revegetation.

MAINTENANCE STANDARDS

1. Good contact with the ground must be maintained, and there must not be erosion beneath the net or blanket.

2. Any areas of the net or blanket that are damaged or not in close contact with the ground should be repaired and stapled.

3. If erosion occurs due to poorly controlled drainage, the problem should be fixed and the eroded area protected.

FIGURE D.4.B WATERWAY INSTALLATION

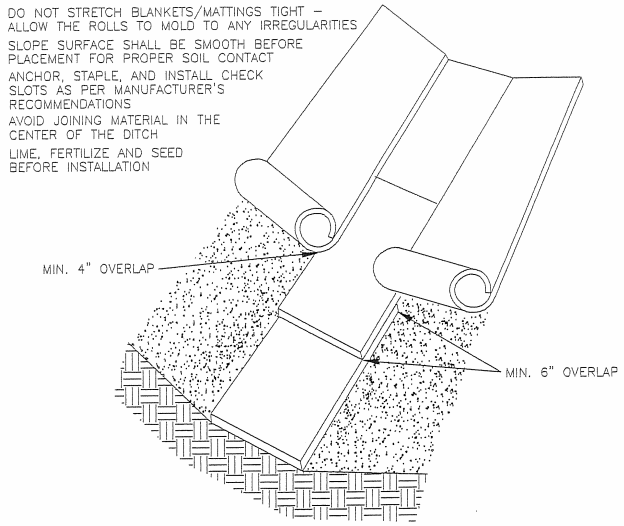


FIGURE D.4.C SLOPE INSTALLATION